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The
Home Garden Handbooks

ROCKWELL

ROSES





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The
Home Garden Handbooks

ROSES

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By
F. F. ROCKWELL

SHRUBS

GLADIOLUS

EVERGREENS FOR THE SMALL PLACE

ROCK GARDENS

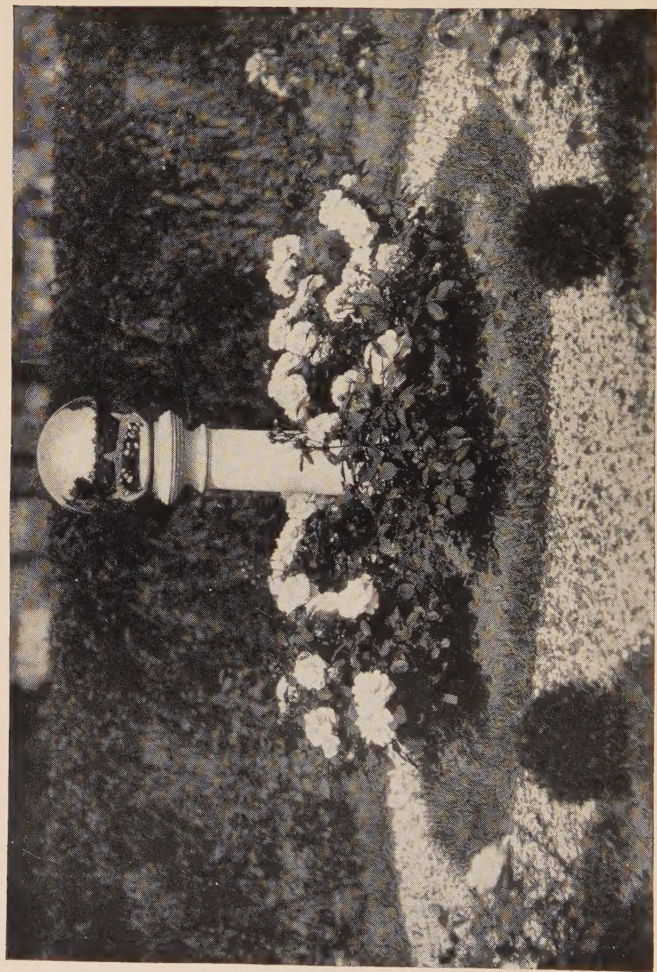
IRISES

DAHLIAS

LAWNS

ROSES





Gruss an Aachen, an example of the new large-flowered Polyantha hybrids, and a really everblooming, large-flowered, bedding, garden, and cutting rose (see page 35).

The Home Garden Handbooks

R O S E S

BY

F. F. ROCKWELL

AUTHOR OF "AROUND THE YEAR IN THE GARDEN";
"THE BOOK OF BULBS"; "IRISES"; ETC.

Photographs by the Author
Drawings by George Hollrock
and the Author

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ON A SUN-DIAL WREATHED WITH ROSES

*I have beheld at dawn the fresh blown rose,
With trembling silver at her heart of gold;
And then returned, ere the first light at dusk was burning,
Ere the sun's short half-circle reached its close—
Her shattered petals lay upon the mold,
Dust unto dust returning.*

*"So frail a thing is Beauty!"—so the dial
Of brass and stone, marking the marching hours
Year after year, whispered—(or was it the wind sighing?)—
"How brief! how barren! This morn a little while
She laughed, and nodded to her sister flowers:
Dead now, ere the day's dying!"*

*Poor sightless dial, that has not learned to know
For all its years, the shadow from the sun,
How like the world's its self-content but warped philosophy.
Each silken petal that had fluttered low
Flashed, ere it fell, a smile from God, and won
Thereby to immortality!*

FREDERICK F. ROCKWELL
In the American Rose Annual

HOW TO USE THIS BOOK

THIS is one of the Home Garden Handbooks. Like its companion volumes in this series, it is planned to give, in as few words as possible, just the information you need to enable you to succeed with one important garden subject—in this case with Roses.

Here you may read just how to select and grow the finest roses, for the rose garden, for landscape use in borders, and to deck walls, fences, and trellises.

But few photographs are used in this book. There are two reasons for this: first, the author feels that many points which really need illustrating can be explained more clearly by drawings than by photographs; secondly, halftone engravings are costly and the use of but few of them makes it possible for you to buy the book at lower price.

THIS BOOK IS DESIGNED TO BE USED RIGHT WITH THE ROSE CATALOGS AND GROWERS' LISTS. There you will find described and illustrated, often in color, not only the varieties mentioned here, but the many fine new Roses which are introduced by dealers and growers each season. For the same reason, no long descriptive lists of Rose varieties for various purposes are given, since varieties change from season to season, and the catalogs of reliable nurserymen and dealers contain such suggestions, with complete descriptions and illustrations. ROSES should, therefore, be studied and used in connection with your catalogs—the opening chapters with their suggestions for using Roses and descriptions of types while you are making out your orders for plants; and those on care, culture, and protection while you are waiting for your plants to arrive.

Greatest care has been taken to make the index complete, so that the reader may find easily all the information given on every point. Use the index and consult your HOME GARDEN HANDBOOK frequently while you are at work in your garden!

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ROSES

INTRODUCTION

By ROBERT PYLE

Secretary, American Rose Society

THE American people, at least more than a million of them, with a zest delightful to contemplate, recently and emphatically by popular vote have designated the *Rose* as *America's National Flower*. Happily, too, this vote names not the hybridized, many-petaled, double Rose, such as marks the English crest, but rather the Wild Rose such as we find indigenous to so many parts of this great continent.

The far and wide distribution of the Wild Rose, no doubt, has helped to make it America's favorite flower, for truly it may be grown quite successfully from Miami to Quebec, to Alaska, to Panama, to Kansas City. To feel abundantly gratified, however, with our ventures in domesticating the Rose two things are important: first, we should select right varieties for our particular locality. More than 40 distinct families are represented and over 2,000 kinds are in cultivation in America today. Then, having chosen the right kinds to fit your part of the weather map, remember that while Roses are not difficult to grow, intelligent care will have its especial reward.

The present popularity of the Rose is nothing new—the records of the race from earliest time are entwined and garlanded with this five-petaled flower. To judge from recorded evidence four thousand years ago, the Rose even then must have ministered to man's innate hunger for beauty.

In the last year of the last century devotees of the Rose organized themselves into The American Rose Society. Hereby is now afforded a common meeting ground for ama-

teur, as well as for professional, workers, to compare experiences, to institute research.

"A Rose for Every Home—A Bush for Every Garden" projected the vision that has yet to be fulfilled. "To improve the excellence of the Rose, and increase interest in its cultivation" continues to be the avowed objective of this international organization. Already under its banner proceeds the work of hundreds of groups of Rose lovers, locally organized in every state of the union and in many municipalities. Public rose gardens, under its inspiration, have been planted in fifty cities to the delight of increasing numbers. Exhibits of roses have been organized, Rose test gardens, research and educational work have been carried forward, standards have been set up for nomenclature for orderly registration and as a basis for judging. Free advice is offered by a widely scattered Committee of Consulting Rosarians, pilgrimages have been held in many states to the home gardens of distinguished Rose folk. Perhaps the most useful work of the Society is that carried forward by its editor, Dr. J. Horace McFarland, recently made president. Of encyclopedic value are the 15 consecutive issues of the *American Rose Annual* (a cloth-bound library volume of over 200 pages, beautifully illustrated) actually written by enthusiastic members of the American Rose Society all over the world. A loan library contains the latest authoritative books on the Rose, all readily accessible to members.

The *Members' Handbook* has been superseded by the *American Rose Quarterly*, containing a timely calendar of Rose events in both the European and American continents, with complete information regarding the numerous varied and widely scattered activities of this continental organization.

As secretary of the American Rose Society, it is a real delight to speed on its way this little volume. I feel confident it will add light and leading to many in the pursuit of a happy "pastime which old age will not wither."

CHAPTER I

THE QUEEN OF FLOWERS

THOUGH it is late in November, I can glance from my window as I write and enjoy a score of beautiful roses still lingering on the three bushes trained against my neighbor's sunny wall.

They seem reluctant to leave while there is yet strength in the sun's rays, growing more slanting each day, to nourish the foliage clinging to their stems. Frosts have not discouraged them: they have outstayed all the hardy perennials, even the latest of the chrysanthemums. The roses will begin blooming again in May, months before their rivals for the honor of being the last flower to bid farewell to autumn. These particular rose bushes, my neighbor tells me, have been growing where they are for more than twenty years; they look good for twenty more.

And in the border near by, glistening in the late autumn sun, bask a row of glass jars, upside down. Under each there is a "slip" being rooted in the old-fashioned way. Most of these are destined for the gardens of neighbors. Perhaps not all of them will take root and make new plants, but the majority will; many roses may be propagated with ease and certainty even by the beginner.

The rose is a companionable and serviceable flower, and not always the haughty beauty which she is sometimes made out to be. It was never by her beauty alone that she first won her place as the "queen of flowers" back in the time-obscured beginnings of civilization. The fickle, pouting, sometimes sulking aristocratic beauties of our gardens—and there are some such, the catalogs of rose-growers to the

contrary notwithstanding!—are a present-day development. Very different were the first roses which primitive gardeners brought in from mountainside and meadow to adorn their home sites.

Easily grown also were the first cultivated varieties which emigrating tribes and adventuring pioneers carried with them—a root or a carefully guarded “slip” with the household belongings—as they spread to the far corners of the world. These roses won a place in the folk-lore of the race, and the rose became a symbol of beauty and of romance; not a mere flower, but a tradition of almost religious significance; *the* flower, alike of peasant and of poet, of camel driver and of courtesan, of the simple shepherd and his lass, and the marble-columned temples of Venus. A rose by any other name may smell as sweet, but the word itself has come to possess a significance which the name of no other flower may even remotely approach. It takes something finer and deeper than beauty alone to make a queen, in the sense in which the rose has become the queen of flowers.

WHENCE COMES THE ROSE?

The origin of the cultivated rose is lost in the dim morning of antiquity. In the beginnings of literature, in the sensuous imagery of the Persian poets, even before those heroic days “when ’Omer smote ’is bloomin’ lyre,” the rose was already a fixture in the folk-lore of many of the earth’s peoples. It is entwined in those few immortal fragments which have come down to us from the songs which Sapho sang in Lesbos by the sea. And there is evidence that these old, old roses were not merely the wild species with which Nature has so lavishly decorated so many widely separated sections of the globe, but cultivated varieties originated long before.

Through English literature from the very beginning the rose has been prominent, but it first began to attract really enthusiastic attention in English gardens only with the increase of new garden varieties at about the beginning of the nineteenth century. The development of the modern type

of garden roses is quite recent; mostly since 1850. The Hybrid Perpetuals came first. The Hybrid Teas, according to the Rev. Joseph Pemberton, who has written so delightfully of English roses, were not recognized as a distinct class until 1890, though the first of this class recorded was sent out in 1873. The Lyon rose, one of the forerunners of the popular salmon-orange shades in the Hybrid Teas, or "everblooming" roses, was introduced in 1909.

WHAT THE MODERN ROSE OFFERS

While some interest attaches to the origin of our modern roses, the question of real importance to the home owner is what they offer him in the way of providing beautiful blooms for cutting, or of making his grounds more attractive. He is not particularly concerned as to what *can* be done with roses: the point at issue is what *he* can do with roses. And the competition of other flowers is keener than ever before. The almost unbelievable progress which has been made in the development and improvement of perennials, and even of annuals, means that the proud rose must fight to keep her place!

Is she doing this? Can she successfully hold her own? Can she offer as much in return to the busy gardener, in proportion to the care she demands, as the many other flowers now backed by flourishing and aggressive national societies supported by sound commercial interests, which are striving for an ever increasing share of every home owner's attention?

I believe that the answer to all of these questions is "Yes." But this is only because the rose itself has kept pace, in the improvement of varieties and the development of new types, with the progress made by any of her competitors. The modern rose is all things to all people. No other class of flowers is more flexible in the range of uses to which it may be put; none perhaps quite so much so. It supplies in its various forms the most beloved of flowers for cutting, glorious displays of color in the garden, climbing plants which during

their season of bloom are of unrivalled beauty, and a wide and varied range of material for the landscape architect. There is no present danger that the queen of flowers may lose her crown.

As to the future? Well, the rose-breeders tell us, after their several centuries of work, that they have just begun; and there is much evidence to substantiate their claim. In many directions gains are made almost yearly. The creation of more vigorous growing, disease-resistant varieties, particularly among the "golden" or yellow-toned garden roses; of longer flowering or even ever-blooming Climbing roses; a greater degree of fragrance (for a long time very much neglected) among all types; newer colors and forms in the rock-hardy and disease-proof Rugosas; climbing forms of the popular Hybrid Teas, with long-stemmed flowers suitable for cutting—these are some of the objectives towards which progress has been or is being made. Much as the rose of today offers us, still more is held in promise by the rose of tomorrow.

ROSES FOR ALL

One more thing I would like to emphasize before concluding this first chapter.

Given soil—any kind of soil—and sunlight, anyone can grow roses anywhere.

That is not to say that *all* roses can be grown anywhere, but there are roses as hardy as the hardiest shrubs. Our own native species grow as far north as the Arctic circle. The rose is typically a cool, if not a cold climate flower.

Also, it is possible to have roses—long-stemmed, full-sized roses for cutting—without the space necessary for a rose garden. This has been made possible by the hardier Climbing roses, of comparatively recent development, which are entirely distinct from the old cluster-flowered Rambler type. Many a lover of roses has been content to go without them either because space for a rose garden was wanting, or because of lack of time to give garden roses the attention

they require. These new large-flowered Climbing roses are as easy to grow as the old-fashioned Climbers, and will yield dozens of beautiful roses for cutting each season, in addition to their glorious display.

Rose "Applesauce." Many a rose lover has been actually discouraged from attempting to grow garden roses by the traditional endlessly complicated directions for rose culture. Some of the things advocated—such as the elaborate preparation of beds three or even four feet deep, special pruning for individual varieties, special preparation and application of liquid manures, particular types of soils for the many different classes of roses, sometimes even for the individual varieties—were enough to confuse even the practiced gardener. One can be sure of having satisfactorily good roses with but a fraction of all this fuss. I think that my friend, C. C. Sherlock, has put this matter tersely and hardly too harshly in his comment that "It is time to take this nonsense and drop it over the garden fence."

We can all have roses, at least satisfactorily good roses, if not such blooms as would capture blue ribbons at flower exhibitions. It is perfectly true that roses, particularly garden or bush roses, will require more time and looking after, because they are subject to more possible causes of failure, than many other flowers. But they are well worth it! Without taking them too seriously, we can grow roses for the pleasure which there is in growing them, as well as the beauty which they offer us in return. Let us try to get a little of the point of view of the rose herself, as expressed by that very wise old reprobate Omar, the singing tent-maker of Persia:

Look to the blowing Rose about us—"Lo,
Laughing," she says, "into the world I blow,
At once the silken tassel of my Purse
Tear, and its Treasure on the Garden throw."

CHAPTER II

WHAT ROSES SHALL I GROW?

ROSE TYPES AND THEIR MANY POSSIBILITIES

THERE are not merely hundreds, but literally thousands of rose varieties in commerce, and every season sees dozens of new introductions.

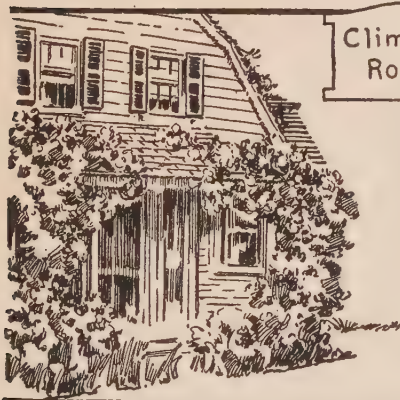
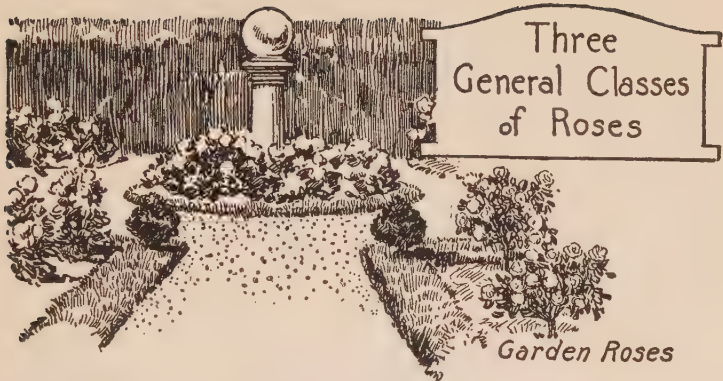
Little wonder then that one of the first and most perplexing problems to face the beginner with roses, having space for but a few, is "what roses shall I grow?"

If, searching for an answer to his question, he begins to look into the older literature of the rose, he will find almost endless classifications of races, types, and "sections," with descriptions of complicated lines of descent which become, as they approach our present-day roses, hopelessly mixed and intermingled.

HABIT-OF-GROWTH TYPES

The growing chaos resulting from the attempt to retain botanical differences for purposes of classification has led to a different method of grouping, based upon habits of growth. This system, though less scientific, is much more practical for the layman. He can readily grasp what is meant by such terms as "ever-blooming," "trailing," "hardy," "baby," "garden," or "bush," "shrub," "pillar" and "climbing." The older terminology, including a multitude of such terms as "Banksia-hybrid," and "Bourbon, intermediate between Bengal and Damask," means nothing to the uninitiated.

But is it not possible to find a method of classifying or grouping roses which, from the amateur's point of view at least, will be even more simple than either of the above?



Climbing
Roses



Landscape
Roses

I think it is. After all, in what is the beginner primarily interested? To make selections from the almost awe-inspiring lists which he finds proffered, he must consider first of all the *purpose* for which he is going to use them. Why, then, should they not be grouped or classified upon this simple basis?

GARDEN ROSES; CLIMBING ROSES; LANDSCAPE ROSES
ROSES GROUPED ACCORDING TO USE:

There are, in general, three methods of using roses, or, rather, three purposes for which they may be employed. For growing in rose gardens; for climbing over supports; and as material for landscape planting, along with shrubs and other things. For the purposes of the home gardener they may be so classified. In the hope that it may do away with much of the confusion in the mind of the beginner resulting from more complicated groupings, this classification is used in this book. It is true that some roses are adapted to more than one of the three purposes above suggested, but this does not alter the fact that the gardener can think of them most easily as belonging to one of these three groups.

Garden Roses. All kinds of roses may be grown in rose gardens. But the term "garden roses" has gradually come to be limited to that group of roses, consisting of several classes or families, which from their size and habit of growth are suitable for planting in the garden strictly devoted to roses, and which, on the other hand, are generally *not* likely to succeed without the special care which the gardener can give them in beds of their own.

The garden roses should be fairly compact and bushy in growth, attaining a height of from two to four feet. They are usually wanted both to make a show in the garden and to supply blooms for cutting. The length of the season of bloom is of the greatest importance to the gardener. Vigor of growth, hardiness, or cold resistance, and resistance to diseases, are other characteristics to be carefully considered.

Garden roses are almost invariably grown in gardens or special beds devoted exclusively to them. Sometimes, other types of roses are used with them, but such are in the nature of "trimmings." One may possess a rose garden no matter how small its dimensions: even though it accommodates but a dozen plants it will be a rose garden. Garden roses may be grown in the mixed flower border, or as individual specimens, but in practice it usually happens that such plants are more or less neglected, and for that reason fail to do satisfactorily. Where roses must be so grown, it is generally best to use what are designated in this book as "landscape roses."

Climbing Roses. Accurately speaking, there are no "Climbing" roses, if we use the term as it applies to many of the perennial and annual vines. The roses which we speak of as "Climbers" are those which produce long, pliant canes which, when supplied with a trellis, lattice, or some other means of support, may be easily trained to assume a climbing position. In nature, or when left to themselves in the garden, they sprawl or trail over the ground.

In the same class with the Climbers—because they are used in much the same way—we may consider the semi-climbing or "Pillar" roses, which like the Climbers are not capable of supporting themselves. The line between the two is not at all distinct: the varieties which attain a height of eight or ten feet or more are generally spoken of as "Climbers," and those of lower growth, but too tall or too briery to stand by themselves, as semi-climbers or "Pillars." The latter term is derived from the usual method of giving them support by tying them to stout posts, with the resulting pillar-like effect.

There are many possible ways of utilizing the Climbers other than those ordinarily encountered. Some of these are suggested in the chapter devoted to Climbing Roses. In passing, emphasis may be put upon the fact that the Climbing roses in general, in the several distinct types now available, offer the surest and the greatest returns in rose value,

for the least expense and attention, of any of the three groups here mentioned.

Landscape Roses. Under this heading we may include the many excellent roses which are not adapted to a place in the rose garden, are not climbing or semi-climbing in habit, but still deserve a place in, and are worthy of wide use for, the landscape planting—to form hedges, as individual shrubs, in the mixed shrubbery border, and in other ways.

Unquestionably this group has been more neglected, in proportion to the real merits of the roses found in it and the unappreciated opportunities for their wider use, than either of the others. Some of the hardiest and most easily cared for of all roses, such for instance as the *Rugosa* and the *Rugosa* hybrids, and not a few of the natural species, offer material of the most desirable sort for many landscape uses.

CHAPTER III

GARDEN ROSES: AND ROSE GARDENS

GARDEN or bush roses offer by far the greatest range of form, color, and fragrance, and may be enjoyed over the longest period—not infrequently quite continuously from June to October or November—but they demand a reasonable amount of care and attention in return! If one is unwilling, either from inclination or lack of time, to do a certain amount of pruning, spraying, and fussing, then by all means is it best for him to invest his money in some other type of roses.

Generally speaking, it will not pay to attempt the garden roses unless a space can be devoted to them alone. They seem, whether or not there is any real reason for it, to do better by themselves and associated with each other. Certainly it is much easier to give them the care they should have when they are so planted.

THE IMPORTANT CLASSES OF GARDEN ROSES

To make an intelligent selection of varieties for a rose garden, the planter should have some knowledge of the several classes or “families” which are available. Their relative advantages and disadvantages may then be considered.

The three types which are by far the most important are the Hybrid Perpetuals, the Hybrid Teas, and the Tea roses. Of these, the Hybrid Perpetuals are the hardiest and, therefore, of relatively greater importance in the extreme northern states, while the Teas, which are the tenderest, are the favorites in the South. The Hybrid Teas, resulting from a mixture of these two types, are sufficiently hardy to be

grown almost anywhere in the United States, except in mountainous or other abnormally rigorous regions, if given winter protection.

Hybrid Perpetuals. These are referred to in the catalogs as "H P's" and are sometimes known as "June Roses" because their great display of blooms is made at that time. They are *not* perpetual bloomers, though many of them give a fairly generous and warmly welcomed showing of flowers again in September, October, or even in November.

The Hybrid Perpetuals are not only the hardiest of the garden roses but the most vigorous growing. Some varieties attain a height of six to eight feet if not held in check by severe pruning. This tendency to rank growth should always be kept in mind in assigning them their positions in the rose garden. The flowers are bold and large, and for the most part deliciously fragrant, but inclined to be fat or globular. The color range includes the finest light pink and red shades. It is sometimes said that there are no red roses among the Hybrid Teas to equal the finest of the H P's. This is claiming too much, for certainly such wonderful reds as Chateau de Clos Vougeot and Etoile de Hollande are as fine as anything to be found here. Yellow shades are lacking in the H P's, though in the new Mme. Albert Barbier we have a lovely apricot tone.

A number of the Hybrid Perpetuals are of such extremely vigorous growth that they may well be used in the mixed shrub or flower border or for landscape purposes.

Some examples of the Hybrid Perpetual type with which almost everyone is familiar are Frau Karl Druschki, the world's most popular white rose, the old "Jack Rose," General Jacqueminot, and American Beauty.

Tea Roses. This class owes its name to the supposedly "tea" fragrance of the blooms. They were the first of the so-called "ever-blooming roses" to be developed, and are sometimes spoken of as "monthly" roses. "Intermittent" more accurately describes their habit of flowering, "off-and-

Types of Garden Roses

Tea



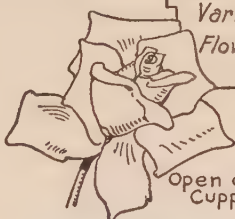
Hybrid Tea



Hybrid Perpetual



Full or Globular



Open or Cupped

Variation in Flower Forms



Single



Semi-Double



Cactus

Flat Open Flower



Round Bud



Ovoid Bud



Pointed Bud.

Half or Dwarf Standard



Dwarf or Bedding



Standard or Tree Form



on" through the summer. Like the Hybrid Perpetuals they bloom again more freely in the fall.

In habit of growth, the Teas are entirely distinct from the Hybrid Perpetuals. The wood is slender, sometimes almost wiry, and the low-growing bushes branch outward freely. Both the bark and the foliage are smooth and shiny. While in habit less hardy than the Hybrid Teas, there is no sharp distinction, the hardier Teas standing just as much cold as the more tender Hybrid Teas. Though of weaker growth, the Teas are actually more disease resistant than the Hybrid Perpetuals.

Well known representatives of the Tea group are the old favorite Maman Cochet, Lady Hillingdon, and William R. Smith.

Hybrid Teas. This class resulted from crossing the Hybrid Perpetuals and the Teas, each of which had already a much mixed ancestry. Since then many other strains have been added. They combine the advantages of both Hybrid Perpetuals and Teas to such an extent that the hybridizers for many years all but abandoned the production of new Hybrid Perpetuals or Teas for outdoor use. Their color range includes almost every shade imaginable, with the exception of blues. With a fairly good collection, under average favorable conditions, one may have roses continuously from June to October. In southern New Jersey I have cut from a moderate-sized garden, without a week's omission, from late May until December. Not all varieties were in bloom all the time, but there were always roses available.

In habit of growth and in hardiness the Hybrid Teas are intermediate between the Hybrid Perpetuals and Teas, but by no means uniform. Some are hardly to be distinguished from the one, and others from the other type. In height they range from a foot and a half to four feet. In the best catalogs habit of growth and height are given in the descriptions of the individual varieties, so the buyer can know whether he is going to get a vigorous or a weak growing

plant. The latter are not to be condemned, because they supply some of the most beautiful blooms. The old Gruss an Teplitz, Kaiserin Auguste Viktoria, and the more recent Los Angeles are varieties among the Hybrid Teas with which almost everyone is familiar.

Pernetianas, which are Hybrid Teas, are sometimes listed as a separate group. They include most of the popular yellow, orange, copper, and tangerine shades. These colors have been derived from the yellow-flowered Austrian Brier, or its relatives, as one of the parents. This class got its name from the man who first developed it—Mons. Pernet-Ducher of France. Though often more robust in habit of growth than other Hybrid Teas, with strong, dark foliage, the Pernetianas have been unfortunately more subject to diseases. This drawback is gradually being overcome. The strongest-growing Pernetianas may well be planted with the Hybrid Perpetuals, where a group of these is included in the rose garden, thus adding the desired yellow shades.

OTHER GARDEN ROSES

Other more or less distinct types or classes of roses suitable for garden growing will be found mentioned in some rose catalogs, as well as in rose literature. While interesting to the rose enthusiasts they are not particularly important to the beginner, because the best of the qualities which they possess have been transmitted to the modern Hybrid Teas. They include such types as the China or Bengal roses, of which the old Formosa is perhaps the best known, and still well worth growing though it was originated in 1840; the Bourbons, quite closely related to the former; and the Damask, Gallica, Banksia, Noisette, Provence, and Moss roses.

Polyanthas or Dwarf Ever-blooming roses. These increasingly important roses are for bedding rather than garden purposes. They are described in Chapter V.

"Tree" or "Standard" Roses. In the more or less formal rose garden, and for certain formal landscape effects, "tree"

or "standard" roses are quite often employed. They are obtained by growing some of the popular garden varieties, which have proved best suited for this purpose, on upright, single bare stems three to four feet high. It is claimed that roses so grown are less likely to be attacked by foliage disease, because of the freer circulation of air around the tops. Such experience as I have had with them does not seem to substantiate this theory. It is certain that they are much more likely to be injured or even killed by winter exposure than the same varieties grown in the usual way. However the tree roses are extremely effective for some special purposes and well worth the extra trouble they require. (Methods of winter protection are described on page 59).

PLANNING THE ROSE GARDEN

While it is true that any really good garden soil will grow many roses satisfactorily, without any special preparation other than proper handling and fertilizing, better results are to be expected where the rose garden, or the bed in which the roses are to be grown, is given special preparation for this particular object. The subject of soils and fertilizers is treated in Chapter VI. We shall discuss here the location and design of the rose garden.

Location. The location of the prospective rose garden should be the first thing considered because it is more important than the design, and because the design may be determined more or less by the location.

The first requisite for the rose garden is sunshine, at least several hours a day, preferably in the morning for the roses, though late afternoon sunshine is delightful for the rose gardener. The ideal condition is sunshine in the morning and afternoon, and sufficient shade during mid-day to break old Sol's direct blazing rays.

Shelter from blustering winds is highly desirable. So much has been said about the necessity for "air drainage" and free circulation of air for roses that they have often

been damaged by undue exposure. A back yard surrounded by a high, tight wall is not the ideal place to put roses—but I have seen beautiful flowers under just such conditions, season after season. Proper pruning will usually take care of “free circulation.” Select a sheltered spot, if one is to be had, which receives sufficient sunshine.

Shelter can often be provided by shrub borders or trees. Evergreens are particularly desirable as they make an effective windbreak during late winter and early spring, when it is most needed. Almost invariably the prospective rose grower is cautioned against locating his rose beds anywhere near a tree. It is amusing to find in books which warn particularly against this danger, photographs of especially fine roses growing almost at the feet of large trees! Here, as in other matters, common sense should be the guide. Large trees, and even vigorously growing shrubs, consume a great deal of soil moisture and plant food. If the feast provided by a rose bed is set before them, naturally they will help themselves, but by no means need it be removed fifty to seventy-five feet, as some authorities maintain. If the roses are fed as liberally as they should be, a considerable amount of pilfering may be done without any serious harm, at worst it is no great task to keep the roots cut off along the margin of the bed adjacent to the tree. With either a semi-circular edging knife, a spade, or better, an old-fashioned hay knife, it takes but a few minutes to cut off the roots around a bed of considerable size.

Drainage. I believe that much has been written about roses and wet feet is merely unchecked hearsay handed down from one writer to another. Few plants of any description will do well with poor drainage, but in my experience roses will stand quite as much abuse in this respect as most shrubs and perennials. The rose garden shown in the illustration facing page 56 was twice completely flooded, under several inches of water which remained for several days, the second time when the foliage was fully

out. Of course roses will not grow in soil that long remains soaking wet—but very few plants will.

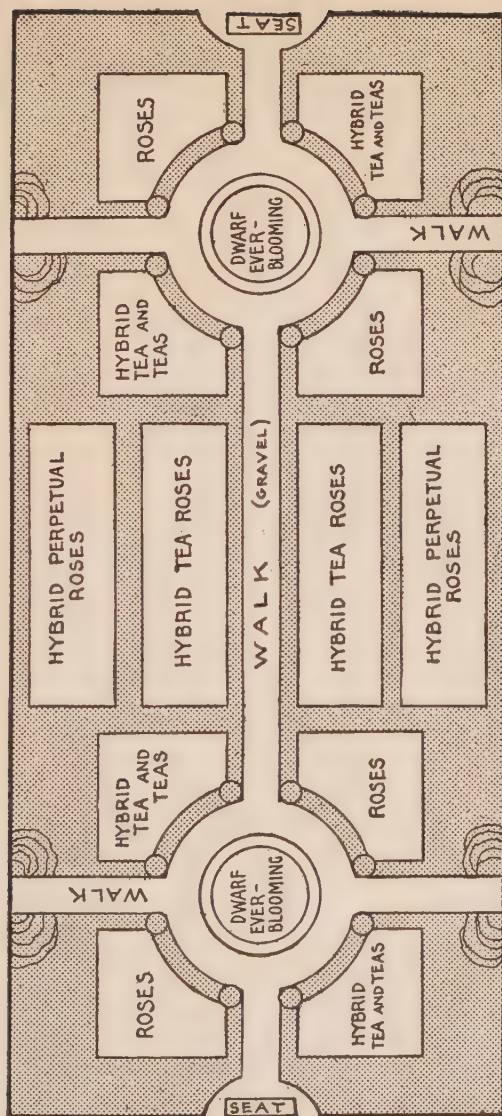
If the rose beds must be made in low ground that is inclined to stay wet after rain *the entire area* should be drained with tile. If the wet condition is caused by the character of the sub-soil, local relief may be possible (see page 38).

It is often said that the rose garden is best located on a gradual slope. I have never found the slightest advantage in this, unless the soil conditions are such that a slope is necessary to provide good drainage.

Design. I have seen numerous attempts at laying out an “informal” rose garden, but never one that impressed me as successful from the landscape point of view—and I say this despite the fact that personally I much prefer in general the informal atmosphere in planting wherever feasible. A rose bed is essentially a formal object. Let us, in working out a design for a garden which is to contain a number of beds, accept it as such and make the most of it.

To say that the rose garden is to be formal is not to suggest that it must be complicated. The more simple the plan, without being absolutely monotonous, the better. The introduction of a few curves or circles will relieve the unpleasant effect of a series of straight lines and rectangles, but some plans presented as models are practical only on paper. On page 21 is a very simple design for a garden of moderate size. The same garden as it appeared a few weeks after planting is shown in the illustration facing page 56.

The individual bed may be sufficiently wide to accommodate one, two, or three rows of plants. All things considered the two-row bed is preferable, though three rows will make more of a glad show of color in the garden. Teas and the weaker-growing Hybrid Teas may be used in the front rows; in three-row beds Hybrid Perpetuals or robust growing Hybrid Teas are good for the back row. Beds for a single row should be from fifteen to eighteen inches wide;



Plan for a small formal rose garden. (See illustration facing page 56.) Climbing roses could be used over arches at the entrances to the walks.

those for two rows about double this, and for three rows a foot wider. The plants are usually set about nine or ten inches back from the edge of the beds and fifteen to eighteen inches apart. Space is economized and a better effect obtained if the plants are "staggered" (see page 50). In figuring the amount of bed space required, two square feet to the row will serve as a rough estimate until the exact space may be calculated more accurately from the garden plan.

The effectiveness of the rose garden will depend very largely upon the background or border which surrounds it. Partially or wholly enclosing the rose garden always gives it an intimate charm and individuality which can never be obtained by a series of beds laid out on an open stretch of lawn. The surrounding border may well be made up largely of landscape types of roses, with possibly evergreens or strong growing shrubs to the north or west, for further protection from the winds. A sundial, gazing globe, bird bath, or small formal pool may be used to add the conventional focal point of interest.

CHAPTER IV

CLIMBING ROSES

CLIMBERS of one sort or another should be planted about every home, large, medium or small, north, east, south, or west. They do not require garden room, and many of them will get along with very little attention. Some of the newer types bearing large individual flowers, such as Dr. W. Van Fleet, are as fine for cutting as any garden roses, though not yet available in so great variety.

The progress which has been made in climbing roses of both the tall growing and semi-climbing or Pillar types is undoubtedly more important to the amateur than that in any other class. Unquestionably the development of the Climbers in America constitutes our greatest contribution to rose progress, and holds most promise for the eventual achievement of the long-dreamed-of distinctly American type of rose—flowers as beautiful as those we now have in the Hybrid Teas, borne upon vigorous, disease-resistant plants which can be grown in any dooryard almost as easily as shrubs, and flowering intermittently if not continuously, through summer and autumn. This is a large order! It is an ideal not yet attained, but by no means impossible.

Some gardeners who already have Climbing roses, possibly purchased years ago, may feel that they do not have room for any more. To such I would suggest in all seriousness cutting out and throwing away these plants (which too often have become infested with the diseases to which they are subject), and planting in their places some of the much more beautiful and more healthful modern Climbers. These cost little—seventy-five cents will buy the best of

them, with the exception of present-season "novelties," and the space which Climbing roses occupy is far too valuable to allow it to remain monopolized by dog-in-the-manger, antiquated sorts.

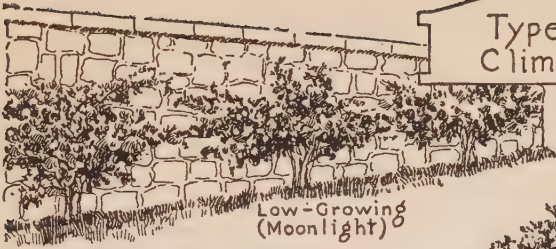
TYPES OF CLIMBING ROSES

There is almost as much confusion in the designation of the various types of Climbing roses as there used to be concerning garden sorts. Continuous breeding and interbreeding has so mixed the strains that any botanical arrangement is impracticable if not impossible.

In attempting to select among the many Climbing roses offered, the first thing which interests the beginner is whether they will prove hardy under his conditions. In most catalogs and nursery lists this division is made. Unfortunately, however, the term "hardy" is a relative one, and varieties differ greatly in the degree of cold which they can withstand. Climbing Lady Ashtown, for instance, is a climbing Hybrid Tea and technically a "tender" Climber, but it will stand zero temperatures without protection. In selecting Climbers it is especially important to get information on hardiness because, from the habit of growth of the plants, they cannot be protected for the winter as easily as the garden varieties. Winter protection is usually possible, but it adds one more task to the rose growers' program.

Habit of growth is the next point upon which information will be desired. Do you want a rose which is capable of climbing up to the roof or covering the top of a broad pergola? Or one of a size suitable for training against a wall or around a window, or to make a glorious pillar of moderate height? Or one which will supply full-size roses for cutting? The best catalogs now usually specify the heights to which a Climber may be expected to reach under average conditions. Look carefully for these details. Names are sometimes misleading. The popular American Pillar, for instance, will climb with the very best of them, and

Types of Climbers



Low-Growing
(Moonlight)



Medium



Tall

Habit of Growth



DENSE
CLUSTER



OPEN
CLUSTER



SPRAY



INDIVIDUAL BLOOMS

Flower Forms



CRIMSON RAMBLER



DOROTHY PERKINS



Dr. W. VAN FLEET



SEMI-DOUBLE
(Dr. Huey)



SINGLE

Paul's Scarlet Climber, used by the hundreds along the famous Cape May "Rose Highway", is distinctly a Pillar rose, and of only moderate growth at that.

Season of bloom is another important consideration. New varieties have considerably extended the flowering season in both directions. Be sure, therefore, to include early, mid-season, and late blooming varieties.

HARDY CLIMBING ROSES

Of the hardy Climbers there are three quite distinct groups or classes, and it is of practical importance to know something of how they differ because they lend themselves to varied uses and because they require different treatment in pruning, some flowering from old and others from new wood. (See Chapter IX).

Climbers. While, as has already been pointed out, no rose literally climbs, those here designated as Climbers will go on growing and spreading for many years, covering a larger area each season. The number of flowers produced by these roses, once they are established, is almost unbelievable. A single plant of Dr. W. Van Fleet has been known to produce, by actual count, over two thousand flowers in a single season!

The individual flowers produced by these real Climbers vary in form from plain singles through every degree of doubleness to closely folded substantial flowers with long pointed buds like those of the finest garden roses. American Pillar, single; Dr. Huey, semi-double; and Dr. W. Van Fleet, double, are three universally known varieties which illustrate the variation in flower form. The flowers are borne in immense loose clusters of a dozen to a score or more, or in some cases singly on strong stems.

The Climbers should be used where their supports are strong enough to hold up the mass of canes or stems resulting from several years' growth. They require little pruning.

Most of the Climbers have as one side of their ancestry

the Japanese rose, *Wichuraiana*, with tough pliable stems, trailing in habit, with tiny leaves of evergreen tendency, and flowers produced in loose clusters.

Ramblers. The Rambler type of Climbing roses differs from the Climbers principally in their smaller flowers, produced in more compact clusters, with a greater number of individual blooms—often thirty to forty—and the thick, robust, stiff canes which grow up from at or near the base of the plant and produce flowering spurs the following season but not thereafter. Most of these characteristics are inherited from the small-flowered *Multiflora* rose, also a native of Japan. The ubiquitous *Crimson Rambler* is the universally known emblem of this type.

The Rambler type of Climbers, therefore, though often growing with extraordinary vigor, should not be used where very tall, large-area-covering plants are wanted, because they start anew each season. They are better adapted to training over arches, trellises, along fences, and in other positions where it will be convenient to remove the old growth entirely down to the base of the plant, after each season's blooming period.

Pillars. The designation of Pillar or "semi-climbing" has been generally applied to vigorous growing varieties, mostly in the hardy class, which do not grow tall enough to be considered Climbers, and are not stout enough to be really self-supporting. The term as it has been used is rather confusing for many of the tall, strong growing bush roses, such as *Hybrid Perpetuals* and *Hybrid Rugosas*, and almost any of the Climbers, may be, and often are used in the "pillar" form—that is tied up to a stake or other upright support of moderate height. *Paul's Scarlet Climber*, already mentioned, and the beautiful new *Jacotte*, are examples of Pillar roses.

TENDER CLIMBING ROSES

A few of the hardier varieties of the tender Climbing roses may be safely grown as far north as Philadelphia or

New York, and southern Ohio and Iowa; but for the most part they belong below the Mason and Dixon line unless one is willing to go to considerable trouble in providing winter protection.

Many Climbers are climbing forms of Hybrid Tea and Tea varieties—"sports" to this different habit of growth with little or no change in the flower. (This sporting is not surprising as the original Tea rose was of climbing habit.) In addition to these "twin" varieties there are others of which there are no dwarf forms; also some old rose types, such as the Bourbon and Noisette, which provide climbing varieties that are still worth growing. Maréchal Niel (Noisette) and Zephirine Drouhin (Bourbon), both introduced before 1870, are quite as fine as many Climbers of the present day.

Recently there have been introduced three quite distinct new "races" of Climbing or Pillar roses which might be termed "three-quarter" hardy. They were originated by the Rev. Joseph Pemberton, the great rosarian of England, Herr Lambert, the famous hybridist of Germany, and our own Captain Thomas who has devoted an energetic lifetime to the queen of flowers. All three aimed at and have made decided progress towards that great goal—the ever-blooming hardy Climber. These roses—of which some are listed in Chapter XII—offer an intriguing field for trial to those who live along the northern fringe of the territory safe for tender Climbers.

THE USUAL—AND SOME LESS USUAL—USES FOR CLIMBERS

Though the several types of Climbers available may be used in many different ways, too often they are merely trained around the porch pillars or fastened directly up against the side of the house.

Try to find new uses for your climbing roses! Don't be afraid to experiment: let your imagination—as the roses themselves will do if you give them a chance—run riot.

Veranda posts and house walls are not the only means of support. Most garages would look much better if half hidden by a climbing rose or two. There may be available an old tree stump, or possibly the trunk of a tree so tall that it does not shut out all sunlight. Picket fences, wire fences, and stone walls offer opportunities for brilliantly beautiful effects with little labor other than putting the plants into the ground. Look about your place and see what opportunities you can discover—the more out of the ordinary the better!—and then select your Climbers to fit the spot.

House Walls and Verandas. Where roses are to be trained up veranda posts or against house walls, they will be more beautiful, can be handled more conveniently, and will be much less likely to serious injury from mildew or other foliage diseases, if a simple supporting trellis is provided. One of the easiest ways of doing this is to set in the ground a stout, upright support, such as a 3" x 4" piece of cypress or a cedar pole, and nail to this eighteen to twenty-four inch cross-pieces at intervals of a foot or eighteen inches. The supports should be of plain wood painted white or foliage green, or rustic in appearance, according to the house architecture and the general type of planting. Leave six to twelve inches between the wall and the support to provide proper air circulation. Plant Climbers, Ramblers, or Pillars according to the effect desired—Pillars if you want the flowers within eight or ten feet of the ground.

Arches, Pergolas, and Summer Houses. There is no more pleasing standardized method of using climbing roses than as a cover for garden arches. If the arch can be made double, to add more space for the canes, so much the better. A good method is to use Climbers to wreath the top of the arch with flowers, and Pillar varieties, blooming earlier or later, for the sides. The same method may be employed for pergolas. This insures the maximum display of climbing roses in a limited space. Many pergolas, after the first two or three seasons, are of little benefit except to passing aviators—the supporting posts are left bare, while the roses

bask in the sun on the roof out of sight from the ground! Training and pruning will help prevent this. For summer houses with tight roofs Pillar or Rambler roses are usually best, as these are low structures.

Trellises, Pillars, and Pylons. Where roses of climbing habit are to stand out by themselves, supports must be provided. The simplest form of support is a single pillar or post. This may be of wood or of inch-and-a-half or two-inch iron pipe (second-hand pipe serves for this purpose) which may be covered with a cap at the top and painted. In either case it is best to set the support in a concrete base which should be rounded up in a cone around the base. Personally, I prefer trellises to posts as they give better display of flowers and more room for the training of the canes, which can be pruned to better advantage. But a trellis should be substantial. The flimsy affairs offered in many catalogs are next to useless. A rugged trellis may be built on the job by placing two 2 x 3 inch posts in the ground, spaced eighteen to twenty-four inches apart and slightly inclined apart so as to form a V-shaped opening. One by two inch cypress uprights and cross pieces, forming lattice work openings approximately twelve inches square, will complete the trellis. The disadvantages of single poles may be overcome by making "pylons" which consist of three or four posts set eighteen to twenty-four inches apart at the angles of a triangle or square, the roses being trained around the *outside* of the posts, leaving a comparatively open center.

Fences and Festoons. While Rambler and Pillar roses serve excellently for stone walls or picket fences, Climbers of the slim, willowy type should be used for training along wire fences or similar supports. One of the most beautiful and effective ways of using Climbers of this sort is to form festoons by training them along light chains, quarter-inch or heavier wire cables, or manila rope (previously soaked in linseed oil) secured to the tops of stout posts and allowed to sag gracefully.

CHAPTER V

LANDSCAPE ROSES

CERTAIN roses, because of hardiness and habit of growth, are especially adapted to general landscape planting in much the same way as hardy shrubs. Up to now these have been the most neglected group. Because they have been in little demand by the general public the hybridizers have given them scant attention.

Notwithstanding the meager recognition that landscape roses have received, they offer to both rose planters and rose hybridizers perhaps the greatest opportunities for the future. If we can get the beauty of form, the range of colors, and the fragrance of Hybrid Teas, with possibly fair stems for cutting, on bushes as hardy, as disease resistant, and as self-perpetuating as the Rugosas, then, indeed, will the rose become literally the flower of the multitude. This ideal does not seem beyond reach. In the Hybrid Rugosa, Agnes, we have the first yellow rose in that class; it is sweet-scented, and hardy in Canada. The new cluster-flowered Rugosa, F. J. Grootendorst, red, and Pink Grootendorst, are among the most "ever-blooming" of all roses. And as a climbing or trailing Rugosa there is the new variety Max Graf. Unquestionably we are on our way!

But one does not have to wait for future developments to make generous use of roses in the landscape. We have not yet learned to use the abundant material already available.

Though it is impracticable to use the garden roses except in more or less formal arrangements (see page 20), a rose plant in itself is of anything but formal habit. Probably it is for this reason that its possibilities for landscape work

have been so constantly overlooked across the water, where the formal character of gardening has always been the vogue, and where most of our rose lore originated. In the more free and natural type of landscaping generally employed in America, the rose should find a welcome place.

As Individual Specimens. Many roses, if not marred by too much pruning, will form plants of attractive outline, from four or five feet to double that in height. When in bloom these are far more decorative than many flowering shrubs.

In the Shrub Border. A great variety of the hardier roses may be used, according to height and habit of growth. Some of the Briers and taller-growing sorts will find sufficient support without being tied, their graceful arching canes adding a beauty of line to the border even when they are not in flower. The Rugosas and other varieties forming conspicuous fruit in autumn are particularly happy additions to any shrubbery.

Hedges and Screens. In the north the Rugosas and the Hybrid Rugosas and particularly the new Grootendorsts, may be used for hedges three to six feet tall. These are wonderfully efficient, and beautiful throughout the season. For dwarf hedges or edging, the "baby" Polyantha varieties give excellent effects. For the South there are innumerable ever-blooming varieties with which to make hedges of almost season-long loveliness. For screens many of the Rambler and Pillar roses, with moderate pruning, may be kept at any height desired and will conceal wires which may be necessary for their support.

Walls, Banks, and Ground Covers. Whoever is so fortunate as to possess a stone wall has a golden opportunity for creating beautiful rose pictures. The great temptation is to overdo it. Varieties of moderate growth so arranged as to hang down over the stones, or climb over from the back, will make a pleasing arrangement, but at least two-thirds of the stone work should be left exposed. Climbers, Briers, or Rugosas are all excellent for covering steep, rough

Roses in Landscape Planting



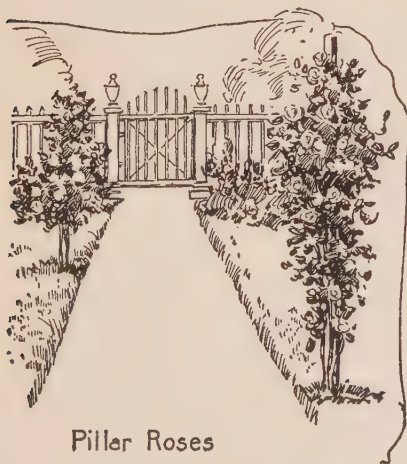
Trailing over wall



For Mass of Color



Rugosa Roses
planted on slope to hold
ground



Pillar Roses



Individual Bush

banks, and incidentally serve a practical purpose in holding them in place. For low ground-covers, willowy stemmed varieties such as *Wichuraiana* or *Wichuraiana* hybrids of the *Dorothy Perkins* type, are best. The new Hybrid *Rugosa*, *Max Graf*, is also ideal for this purpose.

TYPES OF LANDSCAPE ROSES

That the reader may more readily interpret catalog descriptions in selecting roses adapted to these several uses, or to others which may suggest themselves, the following brief classification is given.

Shrub Roses. These include the self-supporting, upright, spreading or bushy kinds exemplified by many of the natural species, and the comparatively few direct hybrids which have been produced from them. Familiar examples are such species as *Hugonis*, "the Golden Rose of China"; *Moyesi*, similar to but taller-growing than *Hugonis*, reaching a height of eight feet or more, and with dark red flowers; the old favorites, *Persian Yellow* and *Harrison's Yellow*, hybrids of *Austrian Brier*; the *Scotch Rose* (*spinosissima*) hybrids, and *Rugosa* hybrids; and a number of the stronger growing Hybrid Perpetuals, such as *Frau Karl Druschki*, which under favorable conditions will make almost a small tree, eight to ten feet high.

Brier Roses. From the wild English Sweetbrier or *Eglantine*, with its bright pink flowers and fragrant foliage, have been developed a number of hybrids which throw up vigorous arching stems, most useful among shrubs, or in groups or thickets. Grown as pillar roses they make attractive individual plants.

Dwarf or "Bedding." The *Polyanthas*—sometimes still called, or miscalled, "Baby Ramblers"—are gaining rapidly in importance and popularity. They are the most nearly ever-blooming roses, not excepting even those that thrive only in warm climates. Most of them grow from twelve to fifteen inches high, though a few reach three feet or more. For the most part the flowers are tiny and borne in dense

clusters; but some newer varieties have blossoms which compare in size with the Hybrid Teas. (See list, page 83). These wonderful little roses are among the easiest of all to grow, and are unsurpassed for low, continuous masses of color, either in solid beds, or in small groups associated with shrubbery, or in the hardy border. The larger-flowering varieties richly deserve a place in the exclusive rose garden. No grower of roses should fail to have some Polyanthas.

Trailing. These are varieties which take kindly to being left by themselves upon the ground, such as Wichuraiana, Dorothy Perkins, Max Graf, and others. (See page 83.)

CHAPTER VI

SOILS, FERTILIZERS, AND MANURES

No TOPIC connected with rose growing has been more energetically debated than that of soils and plant foods—fertilizers and manures.

We are assured, on the one hand, that clay soils and preparation of the beds to a depth of three or four feet are essential to success; and, on the other, that no special preparation is necessary, and that “any soil which will grow good cabbages will grow good roses!”

If we apply to rose growing the same degree of common sense that we do to growing cabbages, most of these soil and fertilizer problems will disappear. About the rose as a plant there is nothing either sacred or mysterious. It is governed by the general principles of plant physiology and plant growth; yet many writers continue to treat the rose as though it were a psychological subject, and a neurotic case at that.

Before we can consider the soil and the plant food requirements of the rose intelligently, we should have some idea of the plant itself and its work.

Most garden roses are highly bred, and the plants are only fairly vigorous, often rather weak. They are bushy, or spreading in habit, attain a height of two to four feet, and have roots penetrating twelve to eighteen inches, but mostly extending laterally to about the same distance, within eight inches of the surface. The root-system consists of hard, woody main roots; is open, and sprangling—not at all densely fibrous like that of a barberry, privet, or boxwood, for instance. The root-systems of such roses is not capable of foraging far and wide for plant food and

consequently will feel quickly a shortage of either plant food or soil moisture.

In contrast to this rather inefficient (if we may so term it) root-system below the ground, what do we find above? A top continuously and actively growing from the first warming of the soil until after the early frosts—a longer period than that of almost any of our common garden plants. From this top a great proportion of the year's growth is cut away by pruning and the removal of flowers. In other words, a minimum root-system supports a maximum top load through an exceptionally long period. It does not need a scientist to conclude that such a root-system must be given every possible advantage to perform a satisfactory job: the soil which the roots occupy must be so prepared as to furnish plant food and soil moisture in abundance and continuously.

SOILS

Most shrubs and perennials, even annuals and vegetables, have their preferences as to soils, but we do not give up trying to grow them merely because we cannot give just what they are supposed to like best. So with roses. For most of the garden roses clay soil is preferable, but they can be grown not only satisfactorily but almost perfectly in practically any type of soil *if* it is prepared so as to meet their requirements. The old idea that heavy clay soil is essential for good roses is incorrect, but it gives us a clue worth following.

What is the reason for this clay soil theory?

So far as I have been able to analyze it from my own growing of roses in many types of soil and from seeing them grown in many more, this theory merely has its basis in the fact that heavy clay loam is more retentive of moisture and plant foods, and is more likely to contain a generous amount of potash, than other soils. Actual tests show that clay is capable of absorbing and retaining 60 percent of its own weight in moisture, while sand retains but 25

percent, and loam, which is a mixture of the two, comes in between according to its proportion of sand. BUT, various forms of humus will retain moisture much more effectively than clay. Garden mold will take up 90 percent, humus 180 percent; and peatmoss has a water absorption capacity of six to seven hundred percent.

In general, then, the common sense thing to do with any soil in preparation for growing roses, is to alter and improve it mechanically.

Very heavy or clay soil should be "cut", loosened up, made more friable by the addition of such materials as sand, fine gravel, cinders (with the clinkers eliminated by sifting if necessary), or gypsum (land plaster) which may be applied in quantity without danger of making the soil too alkaline, as hydrated lime is likely to do.

Sandy or other abnormally light soils may be improved in their capacity to hold moisture and plant foods by adding liberal quantities of animal manures or other forms of humus, such as soil from the compost heap, decayed leaf mold, chopped-up turf (easily obtained and excellent for the purpose), or commercial humus or peatmoss. The admixture of any heavier soil, where it can be obtained, is also of distinct advantage.

Drainage. This subject has already been discussed (see page 20). If poor drainage is caused by a layer of clay *which can be broken through*, then the local application of drainage material such as gravel, small stones, or cinders, will be beneficial. But merely digging a hole in heavy clay and then filling in with such materials under the rose bed, is useless or worse; it may collect much water which otherwise would run off the surface.

Soil Acidity. The free use of lime, often advocated in preparing the soil for rose growing, I believe is often responsible for unsatisfactory behavior of the plants. Roses will thrive vigorously in a neutral, or even in a slightly acid, soil. Hydrated lime used in a quantity sufficient to have any effect on the mechanical condition of the soil is likely

to burn the roots, and to create a decidedly alkaline reaction. Where lime is to be used to improve the mechanical condition of heavy clay soils, let it be raw ground limestone or gypsum (land plaster). Use eight to ten pounds to one hundred square feet.

Soil Moisture. Roses, like all other plants, can absorb through their roots only food which is in solution. Unlike many other plants, garden roses, at least, cannot rely upon roots far beneath the soil to find moisture when it is lacking nearer the surface. In most sections of this country moisture must be artificially provided in dry weather or mid-summer, regardless of how carefully the natural rainfall may have been conserved by cultivation and mulching.

FERTILIZERS AND MANURES

There is no more mystery about plant foods for roses than about soils. The simple fact is that the queen of flowers is an ever-hungry organism which cannot help herself much to obtain the nourishment she needs.

Both experiments and experience have demonstrated fairly definitely that an excess of nitrogen for roses, while promoting stem and leaf growth, will not improve, and may injure, the quality of the flowers; and will increase susceptibility to diseases. It is also well established that roses require rather more than the usual amount of potash to produce the best quality of flowers, and to maintain disease-resistance: some experimenters have gone so far as to claim that mildew, for instance, may be entirely controlled by maintaining an adequate supply of potash, and they cite almost startling results to prove their theory. Considering that the mineral content of roses, by analysis, shows nearly 15 percent of potash for roots and wood, more than 30 percent for the leaves, and nearly 50 percent for the flowers, the necessity for an abundant supply of this element is evident.

Aside from these facts there is no evidence that roses require any special provision in plant foods.

Animal Manures. Despite frequent statements to the contrary, roses may be grown without the use of any animal manure whatever. The great advantage of animal manure over commercial fertilizers is that it supplies moisture-retaining humus to the soil: if the humus is supplied from other sources, the plant food can be provided in the form of fertilizers, and just as satisfactory results obtained.

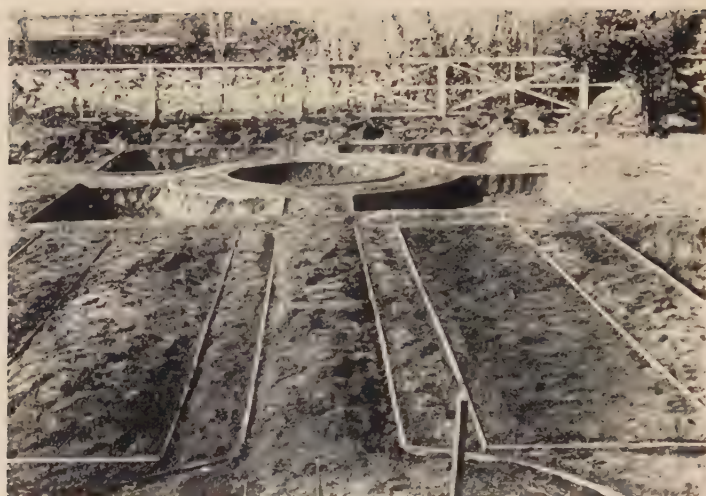
Nevertheless it is desirable to use animal manure in preparing the rose bed if it is procurable. Half-rotted cow manure is by all odds the best for this purpose, particularly in lighter soils. Horse manure and chicken manure are good, but are high in available nitrogen, and therefore should be "balanced" with other materials. Commercial sheep manure is, I believe, considerably over-rated; it supplies little or no humus, may injure root growth if not carefully used, and in cost of plant food content is one of the most expensive. I much prefer shredded cattle manure, or the new dehydrated cow manure, for roses.

Fertilizers. There are two distinct types of prepared fertilizers—organic fertilizers, obtained from animal or vegetable sources, such as bone meal, wood ashes, and ground tobacco refuse; and inorganic fertilizers, chemicals or minerals such as nitrate of soda, muriate of potash, and the modern "complete fertilizers" or plant foods. The organic fertilizers, being less concentrated and usually slower to act, can be safely used even by the beginner. Chemical fertilizers, unless used by persons familiar with them, or by those willing to study the subject and to proceed cautiously, are best used in the "complete" form. There are now on the market several plant foods which are far superior to the former "complete fertilizers". They contain much more plant food, in well balanced proportion, and are clean and always ready to use. The special "rose foods" are also good. *Any of these should be used in strict accordance with the directions supplied with them.*

In preparing a rose bed for planting, I always like to make a generous application of coarse, raw ground bone—



If the soil is poor, dig out beds and refill with good earth, mixing coarse ground bone in the bottom layer.



For convenience, lay out the beds with thin wood strips, which may be left in permanently.



The beds filled, fertilized, and ready for planting.

four to five pounds to each 100 square feet; this decomposes slowly in the soil for several years, gradually releasing the plant food it contains. Bone flour is quick acting, and can be worked into the surface of the soil when planting.

Both wood ashes and tobacco fertilizer (ground tobacco stems and refuse) are safe and convenient to use in supplying an abundance of potash, and they also help improve the mechanical condition of both heavy and light soils. Tobacco stems add a considerable supply of humus. There is little danger of using too much of either (five to ten pounds to 100 square feet will answer).

Humus. If commercial fertilizers alone are employed for plant food, humus in some form is really essential. Even with manure it is desirable, especially on light or sandy soils, because it improves them even more permanently than manures. Peatmoss I have found especially good in preparing soils for roses; this is probably due largely to its peculiar capacity for stimulating new root growth, and dormant roses have practically no feeding roots.

MAKING A ROSE GARDEN

In their efforts to get away from the many old and discredited theories about the "essentials" of rose growing, some garden writers go too far in the opposite direction.

Let us stop to analyze the statement previously quoted: "No special preparation is necessary; any soil that will grow good cabbage will grow good roses."

That is quite true—but it is not so easy as it sounds! Most amateur gardeners would be much surprised to learn how good soil must be in order to grow good cabbages. Innumerable thousands of roses are set out each year in soil so ill-prepared that no sensible vegetable grower would think of attempting to raise cabbages in it!

If the soil is good enough, it will not be necessary to dig out or excavate the bed. But rose beds are usually made where the soil has never been worked or dug as deeply as it should be for roses. No magical results will come from

digging out the bed, but my own experience has been that *digging is easier, quicker, and cheaper than any other way of getting the required amount of manure and fertilizers into the ground well below the surface.* With me the old English system of "trenching," often advocated, has taken longer and proved more back-breaking work than removing the soil bodily, and then refilling. And this latter method has the great advantage that gravel, sand, or poor sub-soil can be discarded, providing room for more good soil.

Laying Out the Garden. It is best to lay out the proposed rose garden on paper. A plan, no matter how rough, will save mistakes and time.

In laying out the design for the garden on the ground, an armful of short stakes or markers will greatly simplify the work. Ordinary plastering lath cut in half and pointed serves excellently.

When the positions of the paths and beds have been accurately located with the pointed stakes, I mark them out permanently with inexpensive, flexible wooden strips about two inches wide, held in position by short stakes driven into the ground. (See illustration facing page 41). Trued-up with a level, these strips serve also as guides for grading. The strips may be left in place, for the grass around the beds will soon cover them. They will lessen by nearly half the subsequent labor of keeping the walks and beds neatly edged.

Preparing the Beds. The next step is to remove the soil from the beds. If they are being made in sod, the soil should be thrown onto pieces of burlap or canvas to protect the turf. Keep the good top soil separate from the poorer soil below. Go down to a depth of twelve inches or so—fifteen to eighteen is better if you are fortunate enough to have plenty of manure available. (If a hardpan sub-soil is encountered, this may be picked out and replaced by drainage material, but this will be necessary only under unusual circumstances.)

Loosen up the bottoms of the excavated beds with a pickaxe if the sub-soil is hard. Fill in from four to six inches with sod and manure mixed together. If no manure is available, coarse leaf mold, compost, humus, or peat-moss may be used as a substitute. On top of this apply raw crushed bone or coarse bone meal—one to two pounds to thirty square feet. This is a heavy application but it will supply plant food for several years.

Over this first layer place four to six inches of the best soil available, well mixed with granulated peatmoss, compost, or other humus-supplying material, to which should be added fine bonemeal, or a complete plant food. If planting is to be done in the fall, it is undesirable to apply fertilizers especially rich in available nitrogen as much of this would be lost before growth begins in the spring.

The top two or three inches of soil should be well pulverized, but need not be so good in quality as that beneath it where the roots make their growth. The beds when completed should be raised somewhat above the ground level as they will settle considerably in the first two or three weeks. If the weather is dry and the roses must be planted soon, settling may be hastened by soaking with water several times at intervals of two or three days.

Such preparation of the beds is really much less of a task than it sounds in the describing. The work is well worth while because a thorough preparation of the soil foundation will go far towards assuring success the first season and in the years following.

There is another decided advantage in thorough preliminary preparation. In such beds planting becomes a pleasure, and can be done in a fraction of the time required in poorly prepared soil. Getting the roses into the ground promptly after they are received is very important. The roots of the plants in such an environment will find immediate nourishment, and spring to new life if there is any vitality in them.

CHAPTER VII

BUYING AND PLANTING

Two frequent direct causes of failure with roses are poor plants, and poor planting. Some others are beyond the rose grower's control, but these two can be eliminated.

Buying rose plants on a price basis is false economy. The cost of the plant itself is only a part of the expense of growing roses. The expense for fertilizers, soil preparation, spraying, and care, will be just as great for a poor plant as for the best. A fairly standard price for first grade two-year-old roses is one dollar, somewhat less in quantity. Occasionally, they may be bought for less, and new introductions, of course, cost more.

Buying through traveling nursery agents is likely to prove expensive, even if you succeed in getting good plants of modern varieties. This should never be done unless you know absolutely the reputation of the firm back of the agent—and do not take the agent's word concerning it! Buying from department stores, chain stores, and other concerns not in the business of handling plants is risky because they usually buy on a price basis, and often do not get first quality material. And even if they do the plants may be half-dead from drying out by the time the purchaser receives them. Time and again I have seen rose plants on sale which even the most expert care could not have restored to vigorous growth. Occasionally it is possible to pick up genuine bargains, but the chances are against you.

TYPES OF ROSE PLANTS AVAILABLE

Another debated topic is whether "own-root" or "budded" roses are best. Unquestionably the preponderance of evi-

Types of Roses for Planting



A good greenhouse grown plant



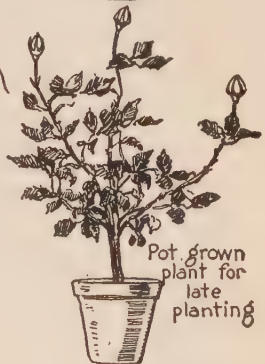
Dormant 2 yr. field plant



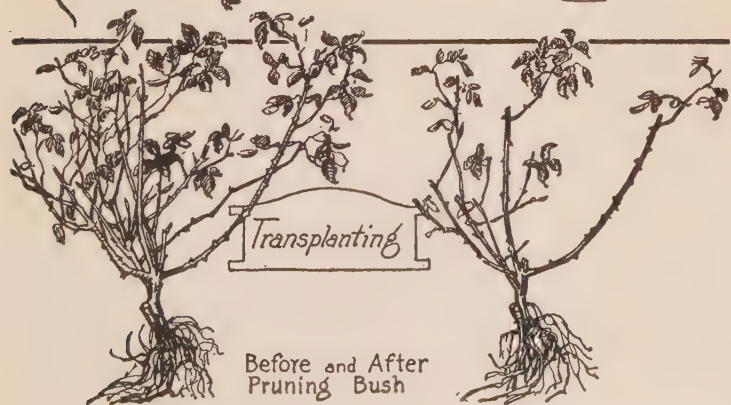
Pot grown plant for early planting



The sort too often received



Pot grown plant for late planting



Transplanting

Before and After Pruning Bush

dence is in favor of the budded roses so far as Hybrid Teas and Hybrid Perpetuals are concerned. Nevertheless, there are a good many varieties which will grow satisfactorily on their own root. As to "stocks" (see page 78), *multiflora japonica* has been pretty generally accepted as the variety best for average American conditions, possibly because it develops a more vigorous and nearly fibrous root-system than most others.

Dormant Field-Grown. The roses most generally offered for sale are in a dormant condition, and can be purchased either late in the fall or early in the spring. They are listed as two years old, but the roots are three years old if they are budded plants. They are dug in the fall after the wood has ripened, and are sent out immediately, or placed in special storage cellars, where every care is taken to keep both roots and tops from drying out, for early spring sales.

Potted Field-Grown. Another method of handling field-grown roses is to pot them in the fall and carry them over the winter in cold frames, or cool houses, allowing them to start naturally in the spring without artificial heat. An argument made against this system is that the long roots curled around the inside of the pot fail to develop normal feeding root systems and produce inferior results. In planting hundreds of such roses, and observing other thousands under various conditions, this has not been my experience. Without question pot-grown plants are increasing in popular favor. They can be set out much later, in fact at any time up to mid-summer, although the earlier the better. And they can be kept on hand after being received, if conditions are not favorable for planting, for days or even weeks without serious harm.

Greenhouse-Grown. Roses grown on their own roots in pots in greenhouses are still another type. They are sold in different sizes and vary greatly in quality, depending upon the conditions under which they have been grown, and how much they have been "forced." Many are next to

worthless, and even the best of them cannot be compared with good quality field-grown stock. They are cheaper and make newer varieties available at a saving to those who will give them particular care and coddling, and wait a year before having plants comparable to field-grown budded stock. In the South, with its longer growing season and a climate favorable to roses of the garden type, they are more likely to give satisfactory results.

Bench Roses. These are plants which, after they have "bloomed out" in greenhouses where they were grown for cut flowers, are often put on the market instead of being sent to the dump. Buying such roses is a gamble at best, with the odds very strongly against the buyer. They are exhausted, soft, and frequently of varieties not adapted to open air culture.

Ordering. Whether you intend to plant in spring or fall, the earlier you order the better, as this means prompt shipment, and receiving the varieties you want. Some sorts are sure to be sold out before others, and as a rule the most desirable ones go first. When ordering give either a definite date for shipment, or tell the grower your conditions and instruct him to ship at, in his opinion, the best time for your locality; also, if you wish him to substitute when necessary.

WHEN TO PLANT

The ideal time for transplanting roses of any kind is *as soon as possible after the season's growth has matured or "ripened"* in the fall; and the shorter the interval between the digging at the nursery and planting in the garden, the better.

Many considerations, however, make it impossible or impracticable to carry out this ideal. A purely psychological but important obstacle is that most amateurs are accustomed to planting in the spring, and it is difficult to change this habit. Another is that in cold climates—where the temperature is likely to go to zero or below during winter—

fall planted roses need extraordinary care and thorough protection to carry them through the first winter. Spring planting is still the prevalent method in almost every section of the country even though it may not be the best.

Spring Planting. Regardless of dates, the earlier the plants can be got into the ground, when the frost is out, the better. This is true even if potted plants are used, although with them delay is not so serious since the new roots have already started in the pots and will continue to develop. Roses may be planted safely at any time after the ground is open *if* the tops (cut back) are protected by heaping up soil around them. Where there is danger of severe freezing weather later it is a safe rule to plant when the earliest shrubs, such as Japanese quince and forsythia, are in flower, and until the peach trees are in blossom. Planting should stop by the time apple blossoms are beginning to show color. *The later dormant roses are planted, the less should they be allowed to make top growth and blooms during the first summer, else the root systems, having a belated start, may be overtaxed.*

Fall Planting. *Don't plant too early.* The wood will not be fully ripened until October or November at the earliest unless the plants have been grown fairly well north; in late seasons it may be considerably later. There is no danger of planting too late, so long as the ground is not actually frozen. I have planted in December and January with completely successful results. If there is danger of the soil freezing before the plants are received, prepared beds may be covered with a mulch of leaves or strawy manure to keep the ground open, the mulch being replaced after the roses are planted. This involves practically no extra work as the mulch should be provided anyway.

Plants are sometimes bought in the fall and buried in the winter to be on hand in good condition for the very earliest planting in the spring. This works if conditions are perfect, but the average amateur will be safer in letting the nurseryman care for the plants through the winter.

HOW TO PLANT

This is another topic upon which much good ink has been wasted. There is no more mystery about planting a rose than about planting the average perennial or shrub. The three important essentials are: (1) protect the roots at all times from wind and sun; (2) put the plants into the ground *firmly*; (3) provide plenty of water until the new root growth is well established.

Handling the Plants. Unpack the plants as soon as received, in a cellar or shed. If they are at all dried out or shrivelled, plump them up by burying completely in the soil or, if it happens to be freezing weather, in moist soil, sand, leaf mold, or peatmoss in a box in the cellar. If they are in good condition, but must be kept for a few days before planting, place the roots in a pail or tub of water, or "heel in" out of doors in a sheltered spot. When removing them for planting keep the roots protected from the sun and wind.

Depth to Plant. Budded roses should be set so that the "collar" or swollen part of the stem, indicating where the bud was inserted, will be *just* below the surface when the soil is levelled off after planting. Own-root roses—Climbers, species, Rugosas, Ramblers, and the like—should be planted no deeper than they previously grew, as indicated by the soil-ring on the stem. Long roots may be cut back to eight or ten inches to facilitate planting, and any broken or bruised roots should be cut back to firm wood. Use pruning shears or a sharp knife to leave a clean cut from which new roots will start quickly.

Planting. With trowel or spade open up a generous-sized hole which will take the roots without crowding. Some fertilizer may be used *if* it is thoroughly mixed with the soil so as not to come into direct contact with the roots. Bone flour is excellent for this purpose, but is not necessary if the soil has been very thoroughly prepared. In sandy or new "raw" soils, two or three double handfuls of granu-

lated peatmoss worked into the soil in each hole will prove beneficial in inducing vigorous new root growth.

Fill in fine soil—prepared for the purpose if necessary—around the roots, which should be spread out, as nearly as possible, in the position in which they formerly grew, until the hole is about two-thirds filled. Tread with the feet to make the plant solid, and then fill the hole full of water to bring the soil in close contact with every part of the roots. After this water has soaked away, fill in more soil, tread down moderately and finish off the surface of the bed with a rake so that there will be a fine smooth mulch on top.



Cutting Back the Plant. Either before setting the plant in the ground, or just after planting, it should be cut back severely, unless this was done by the nurseryman before shipping. Personally, I like to do this job after the plants are in the ground.

In fall planting, cut back to within eight to twelve inches, according to the size and type of the plant. In the spring, when the winter protection has been removed, cut back again to live wood. Spring-planted roses should be cut back to five or six inches, leaving only two or three buds each on the strongest canes. It is often difficult to convince the beginner that he is not sacrificing much of his first season's bloom by such severe cutting. This is not the case, for the roses are produced on the vigorous new growth, which develops with surprising rapidity. Pot-grown roses do not require such severe cutting back as their roots are already in action, but they should be trimmed back from a third to a half.

Labels. Anyone growing more than a dozen and a half different varieties of roses will find it worth while to keep them labelled. The simplest, neatest, lightest, and most inexpensive label I know is the Simplex, made of celluloid. The name is written with an ordinary pencil after which the writing surface is covered with a piece of mica held in place by the copper wire which also secures the label to the plant itself, or to the stake. These are made in three sizes, but the smallest will answer; they cost about three cents apiece in quantity. Rust-proof metal label holders with metal stakes are more substantial and cost about a quarter each.

CHAPTER VIII

CULTURE

THE suggestions in this chapter apply principally to the garden roses, Hybrid Teas, Hybrid Perpetuals, and the like. While many of the other roses, such as Climbers, Rugosas, and species may be grown with less care and frequently thrive with none at all, they will be benefited by the same general practices.

For the convenience of the beginner with roses, the following items in culture are considered in the order likely to require attention. This is only approximate, however, as rose gardening cannot be carried on by the calendar. Vagaries of climate, seasons, insects and diseases, and the idiosyncracies of individual varieties, make this impossible.

SPRING AND EARLY SUMMER

Removing Winter Protection. Do not be in a hurry about this. In any case it should not be removed until the frost is all out of the ground. It is best if new growth can be held back until the leaf buds actually start to grow. In climates so cold that a considerable covering is necessary, it is best to remove protection gradually, making two or three bites of the cherry.

Spring Pruning. This should be done as soon as the leaf buds have developed sufficiently to indicate plainly the condition of the wood. Pruning is such an important part of rose culture that a separate chapter is devoted to it.

Cultivating. All roses—like most other plants—are better suited by an occasional stirring of the soil about the roots. In the case of garden roses, this cultivation is essential. As

soon as the surface of the soil is dried out sufficiently, loosen it to a depth of two to three inches, pulverizing the more or less compacted crust left from winter conditions. The most convenient tool for this purpose is a long handled pronged hoe with recurved, flattened spring teeth, known as the Norcross Cultivator Hoe; this is handy for the perennial and shrub border as well as in the rose garden.

Cultivation should be repeated frequently enough to prevent the surface soil from becoming crusted until the summer mulch is applied, throughout the season if no summer mulch is used.

Feeding. Too often this is the most neglected point in rose growing. No matter how thoroughly the beds may have been prepared for planting, the supply will not last indefinitely. To get the best roses additional plant food must be supplied even the first season after planting.

After the leaves are well started in the spring apply some quick-acting fertilizer rich in nitrogen, such as poultry or sheep manure, or nitrate of soda, to stimulate active growth early in the season. With this, or a little later, apply a good handful of a complete plant food to each plant. But do not apply it just around the plants; cover the entire surface, rake in lightly, and follow with a thorough watering unless the soil is already moist. *The lighter and more sandy the soil, and the more porous the sub-soil, the more frequently must plant foods be applied.*

Watering. Plant food in the soil remains absolutely without effect unless sufficient soil moisture is present so that the feeding roots can take the plant foods up in solution. Sprinkling, which wets the surface of the soil to a depth of only an inch or two, is responsible for much of the prejudice which exists against watering. When water is applied, it should be in sufficient quantity to saturate the soil to a depth of at least six inches, and preferably clear through to the sub-soil. Watering from the open end of the hose, allowing the water to run out directly on the soil, is often advocated as the best method for rose beds. My

own experience has been decidedly otherwise. Applying water in this way requires a good deal of attention, and even then the beds are likely to be turned into puddles of mud, and the water distributed very unevenly. Irrigation nozzles which apply the water in a fine mist so slowly that it saturates the soil to any depth without packing or puddling the surface are much more satisfactory. Several inexpensive types of these are on the market. The automatic type which turns slowly from side to side, and can be left for several hours without attention, is the most efficient for large rose beds. The best of these cover an area up to approximately fifty by fifty feet square from one position. Though the original price is thirty-five to forty dollars, they are a good investment for they take care of all the water requirements on even a fairly large place, and do not get out of order. I have one that has seen constant service for seven years, has never cost a cent for repairs, and still does as good work as when new.

Spraying and Dusting. The one great secret of success in the control of insects and diseases is to use preventatives or remedies *in time*. Ordinarily, there will be little trouble until the plants have begun to bloom, but a constant watch should be maintained. (See Chapter X).

Growing for Exhibition. Outdoor grown roses have never become popular as exhibition flowers in this country, but occasionally there are classes in summer or autumn flower shows. Extra feedings, several weeks prior to the show, particularly with liquid manures, and disbudding, are essential to get the finest individual blooms. It is possible to control the time of bloom to a considerable extent and also to secure much longer stems than would be needed for cutting for ordinary house decoration by summer pruning or pinching back and disbudding, leaving the terminal bud or side buds to develop, as the case may be. The number of days between the appearance of the axil-bud, from which a new flower stem will develop, and the opening of the flower depends not only upon weather conditions but upon indi-

vidual varieties. Ordinarily it is about four weeks. The prospective exhibitor should carefully observe the behaviour of the varieties he plans to show on this particular point.

Disbudding. Even when roses are not grown for exhibition, it is often desirable to remove some of the buds and thus get finer individual blooms. The Hybrid Perpetuals need disbudding most. They have a tendency to form clusters of flowers on one stem. The Teas, on the other hand, tend to produce single blooms, and the Hybrid Teas vary between these extremes. As a rule it is well to leave two or three buds on cluster-forming varieties with fat, round buds, and only one on those with long, pointed buds. In leaving two or more buds, have them separated as far as possible. In "timing" for shows, leave two buds at first and remove one later, depending on their relative development. The buds should be pinched out as soon as they grow clear of the stem, when about the size of buckshot or small peas.



Cutting. The best time for cutting is late afternoon or evening or very early morning. Plunge the stems immediately in cold water to half or two-thirds their length, and if possible keep over night, or for several hours, in a cool, dark or semi-dark place. Most varieties can be cut while still fairly tight in the bud—showing color, but before they have actually begun to open. Others, especially sorts with round, tight buds, must be further developed or they may

fail to open properly. Cut with fairly long stems, leaving two leaves at the base; new flower stems will develop from the axils of these. It is well to cut the night before exhibitions; to obtain longer stems leave only one leaf on the plant.

MID-SUMMER CARE

The chief objective in mid-summer care is to keep the plants growing vigorously. Continue feeding but do not supply an excess of nitrogen. Supplementing the complete plant foods with an application or two of wood ashes or tobacco insures an ample ration of potash.

Spraying or Dusting. Continue regularly whether disease appears or not. (See Chapter X).

Pruning. If many flowers are cut little pruning will be required. If not, faded flowers should be cut off with enough stem to keep the plant low and bushy. The resulting new growth will produce more flowers. Spring-planted roses which are not holding their own should be pruned back more severely to give the roots a chance to balance the top growth. Some of the climbers should get their regular annual pruning immediately after flowering. (See Chapter IX).

Mulching. One of the most important summer jobs in the rose garden is the application of the summer mulch. It should be put on when very dry weather seems about to set in—usually in late June or early July. Manure, often recommended for this purpose, is objectionable for several reasons. There is little doubt that it helps to spread disease. The mulch which I prefer, after trying many, is three parts granulated peatmoss and one part coarse ground tobacco stems, applied one to two inches thick over the entire surface, to within two or three inches of the plant. Peatmoss may be used alone, but the tobacco adds potash and acts as an insect repellent. Buckwheat hulls are sometimes used but they do not contain the valuable humus supplied by the peatmoss and tobacco stems, which may be lightly dug



A small rose garden—approximately twenty by thirty feet—a few weeks after planting.
(See plan on page 21.)



Pruning: 1—Strong growing hybrid tea after one season's growth. 2—Weak and dead wood thinned out. 3—Cut back moderately, for large number of normal blooms. 4—Pruned hard, for bigger blooms on longer stems, for cutting.

into the soil after having served their purpose as a mulch.

While a summer mulch is recommended particularly for the rose garden, it is also well worth while for the climbing roses and other sorts grown as individual specimens.

AUTUMN WORK

With the return of cooler weather the ever-blooming roses will tend to produce more and better flowers. Many of the Hybrid Perpetuals will bloom freely again if they have been kept in good condition. As the new buds begin to form, a last application of fertilizer may be made; if no potash has been given in summer, supply this now as it is important for the development of hard, well-ripened wood which will winter satisfactorily. At least a month before hard frost may be expected, all fertilizing and watering should be stopped as it is desirable to check rather than to encourage new growth. No pruning should be done at this time as this also stimulates new growth.

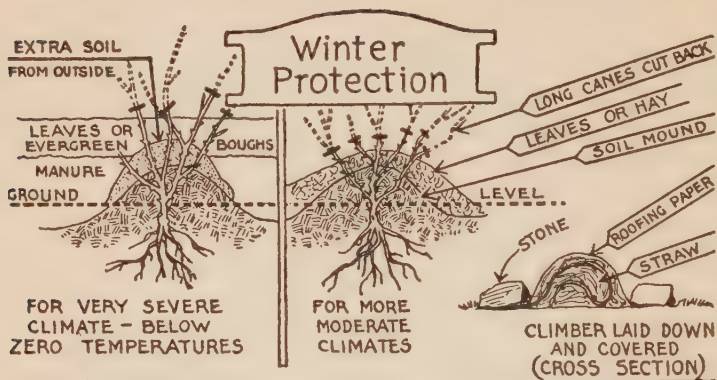
WINTER PROTECTION

Local conditions vary so widely and individual varieties differ to so great an extent in their hardiness or cold-resistance, that it is impossible to set any boundary lines for districts in which winter protection is likely to be essential. The best thing for the beginner to go by in this respect is the experience of his neighbors. If this is not available, the concern from whom his rose plants are secured may be called upon for advice.

As a general rule it is safe to say that wherever there are long periods of freezing temperature the roses are better off with some protection, and where the thermometer often goes to zero or below a thorough winter protection should be provided.

Excepting in sections with sub-zero temperatures, where the bark may actually be split as a result of severe freezing, *it is not the cold which causes winter injury to roses* but the alternate freezing and thawing, bright winter sunshine

and drying winds, and late frosts in the spring after the sap has begun to flow. Therefore, it is these conditions rather than cold which winter protection should provide against.



Garden Roses. The simplest and most effective form of protection for garden or bush roses is hilling up the soil about the plants. This is the first step towards winter protection but it should not be carried out until just before the ground is likely to freeze hard. The "hills" may be from five to ten inches high. They should be sufficiently broad at the base so that the sides will not run down in heavy rains. It is necessary to bring in extra soil for high mounds, so as not to remove too much from the roots. If this soil is heavy and likely to remain pasty when wet, sand, cinders, leaf mold, or peatmoss may well be mixed with it.

As a preliminary to providing winter protection, the canes should be cut back to within a foot or so of the ground. All fallen leaves and prunings should be carefully cleared away *and burned* as they may carry disease spores. If the soil is exceptionally dry, water thoroughly as new root growth will continue for many weeks, and the moisture lost by the tops should be replaced.

After the surface of the ground is well frozen, additional winter protection may be added. Marsh hay, evergreen boughs, or oak boughs with the leaves on, will be sufficient for moderate climates. For severe climates the spaces between the hills should be filled with stable manure—horse manure with a considerable amount of bedding is best for this purpose—or leaf-mold. Place another six inches or so of leaves on top of this and hold in place by twelve-inch or eighteen-inch chicken wire run around the beds, or by closely packed evergreen boughs. In extremely cold sections where snow cannot be counted upon as a winter blanket, the rose beds are sometimes covered over by boards or roofing paper on top of the winter protection. This is necessary only under extreme conditions.

Tree Roses. These are best not attempted in severe climates unless one is prepared to go to the trouble of taking them up bodily every year and laying them down horizontally in trenches lined with hay, straw or leaves, and covering them with soil. They may be transferred for the winter to a cellar or a frost-proof shed: this may be done readily if they have been grown in wire transplanting baskets, such as are used by nurserymen for summer transplanting, which keep the roots and soil intact.

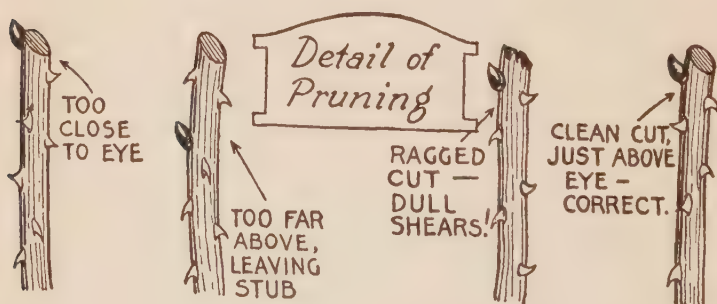
Climbing Roses. These are much more difficult to handle, and with them winter injury is a more serious matter for recovery may take two or three years, while garden roses will bloom freely the first season after being killed back if a few eyes have been left uninjured.

The plants should be trained in such a way that they can conveniently be taken down and laid horizontally along the ground for winter protection. They can be handled much more readily if the canes are tied together at intervals of a few feet in fairly compact bundles. Nothing is so handy for this purpose as the adjustable "corn ties," with metal rings at one end, used for tying shocks of corn. The canes may be laid down at the approach of cold weather—care being taken not to bend them sharply enough to cause

bruises or breaks near the ground—but the covering should not be put in place until after freezing weather. A simple method is to place arches formed of sections of barrel hoops or stout pliable branches of oak, birch, or willow, at intervals of a few feet. These support a covering of cheap roofing paper held in place by stones, or soil thrown along the edges, hay or leaves being placed under and around the canes before this covering is put on. It should be left open at the ends to permit free circulation of air.

Landscape Roses. These seldom require protection as they are among the hardiest types. Hybrid Perpetuals or other not-quite-hardy kinds, grown as individual specimens, can be protected by wrapping them individually with evergreen boughs or rye straw. The latter will be less objectionably conspicuous if given a further covering of a strip of green burlap, put on like a puttee. But it is best to use only varieties hardy without protection for landscape purposes.

The removal of the winter covering has already been discussed (see page 52).



CHAPTER IX

PRUNING

No PART of rose growing is more likely to prove a perplexing problem to the beginner than the "art and mystery" of pruning. But it is not necessary to get any gray hairs on this score. There is no mystery and little art about it. The beginner, by following a few simple suggestions, can do a very satisfactory job at his first attempt.

But *why* prune? And just what is pruning?

To take the last question first, we may say that—for our present purpose—pruning may be defined as removing from the plant any part which is superfluous, or not desired.

The objects of pruning as practiced by the horticulturist are three: to increase the health and vigor of the plant; to obtain a particular form or shape of growth; and to improve the quality of the product.

In pruning roses we accomplish all three of these purposes. But it is not possible to make any uniform rules for pruning which will apply to all roses; the several types require different treatment, and *even the same kind of rose will be pruned differently according to the particular results which the gardener hopes to achieve.*

PRUNING FOR VARIOUS TYPES OF ROSES

Take, as an illustration of the latter case, the pruning of an "HP" rose such as Frau Karl Druschki. If the gardener's object is to obtain the finest individual flowers, or to restrict the size of the plant so that it will be in keeping with less vigorous varieties growing in the same bed, he will cut it back each spring to within a few inches of the

ground. If he wants a big display of a greater number of blossoms, but not quite so perfect, or a taller bush to serve as a background for lower growing sorts in front, he will cut back the canes only to within eighteen to twenty-four inches of the ground. If, on the other hand, it is growing against the house, or as a pillar, or as an individual specimen for landscape decoration, he will merely remove some of the oldest wood and shorten back the tips of the newer canes, leaving the plants six or seven feet tall. Each method of pruning is correct; it all depends upon what the grower is attempting to accomplish.

Garden Roses. The most popular garden roses—Hybrid Perpetuals, Hybrid Teas, and Teas—are alike in that they will all produce flowers best on wood of the current season's growth.

It is always difficult to make the inexperienced rose grower realize that a few brown stubs of stems will in six to eight weeks' time develop into good sized bushes covered with beautiful blooms! I once pruned a rose garden for a lady who had been growing roses for several years. When I had about half finished the job she came out to see how the work was progressing—and burst into tears! I could say nothing to convince her that her beautiful roses were not absolutely ruined. At blooming time, however, the ruined plants were so far superior to the others that there was never again in that garden any fear of using the pruning shears too energetically.

There are two distinct steps in the pruning of garden roses. The first is to *thin out* all wood which is not desired—parts which have been winter-killed, old stubs, and weak and surplus branches, especially at the center of the plant. All these should be cut back clear to the main stem. If some are too big for the pruning shears a small saw may be employed. From two to five or six canes are enough to leave for the skeleton which will form the basis for the new plant; preferably they should be evenly spaced, pointing out from the center, but this is not always possible.

The next step is to *cut back* the remaining canes. If the tips have been winter killed, these will have to be cut back to live wood. For tall bushes and a big display of short stemmed flowers in the garden PRUNE LIGHTLY—merely cut back the canes a third to a half.

If a combination of good flowers on fair stems for cutting and a good display in the garden is desired, PRUNE MODERATELY, leaving six to eight eyes to each cane.

For low, compact bushes and the finest individual flowers on the best stems for cutting, PRUNE HARD—leave only two to four canes, and cut these back to two to four eyes from the ground.

Hybrid Perpetuals. These are the most robust growing of the garden roses and do not *require* as severe pruning as the others, but they will stand it. The weaker growing the plant of a given variety or type the more severely should it be pruned—for the simple reason that the roots of strong growing plants can properly support more top growth.

Hybrid Teas and Teas. These tend to produce more thin, wiry wood than the H P's. Only the strongest of the previous season's canes should be left for the framework. In weaker growing sorts there will often be not more than two of these. Don't hesitate to prune away the weak growth even though there may seem to be very little of the plant left.

Polyantha or "Baby" Roses. These require little or no pruning because flowers are produced on the old wood. Snip out the old flower heads—*not* the entire stems—and then cut out some of the oldest branches when the plant gets too thick and bushy. Some of the newer, large-flowering, taller-growing varieties (see the list on page 84) may need some cutting back to control the size and the shape of the plant.

Other Garden Roses. Most of the other classes of roses occasionally used for garden planting, such as the China, Bourbon, Noisette, of most value in warmer climates, should be pruned but lightly, merely removing the wood that is

several seasons old and pruning out sufficiently to give the plants a symmetrical shape.

Climbing Roses. The mistake most commonly made in pruning climbing roses is to treat them all alike. There are three quite distinct types and they should be handled differently:

The Rambler Type.—Similar in habit of growth to the Crimson Rambler, with large clusters of very small flowers, these flower most profusely on wood *one* year old: i. e., this year's flowers grow on canes produced last year. Consequently the canes which flower this year are useless after the flowering season and should be immediately removed, as close to the ground as possible. The new canes which will have already started vigorously from the base of the plants, should be trained to replace those which have been cut away. It is well, incidentally, to renew the supply of plant food at this time, and supply plenty of water.

The Hardy Climbers. These are mostly Wichuraiana hybrids with larger flowers, borne in less dense clusters, or singly. In this type most of the flowers are produced on wood which is two years old, or older. These also may be pruned immediately after flowering, but only the oldest wood on the plant should be cut back to the ground, and enough of the others cut out or shortened back to keep the plants from becoming over-crowded, and to adjust them to the kind of training desired.

Climbing Garden Roses, and Tender Climbers. These also produce most of their flowers on wood that is two years old or older, and require even less pruning than the large-flowered Hardy Climbers. The climbing forms of the garden roses—Hybrid Perpetuals, Hybrid Teas, and so on—need only have some of the oldest wood removed, and such other growth as may be necessary to keep the plant shaped up as desired. If the plants tend to have too many canes under this treatment, it is often advisable to cut out most of the *new growths* as they start.

Landscape Roses. These need the least pruning of all,

first because they are mostly species or species hybrids, which require little pruning; and secondly, because the way in which they are used makes desirable plants that are as natural in effect as possible.

Some thinning out of the old wood, especially at the center of the plants, and "heading in" canes or branches which seem disproportionately ambitious, will keep them in condition. Rugosas, *R. blanda*, *R. spinosissima* and others which spread from underground stems, tending to form a thicket, should have some of the oldest canes cut back to the ground each year. A long-handled berry or thinning hook, or a brush hook (which fits on a scythe handle) is much more practical than pruning shears for this purpose. Roses which are allowed to trail in a tangle over banks, or as a ground cover, are best left alone as long as they continue to bloom satisfactorily, and then cut back clear to the ground to provide new growth. If the planting is a large one, a part can be cut back each year, so that there will be no flowerless intervals.

HOW TO PRUNE

The first care in pruning should be to make a clean cut. Excepting with very small wood, it is usually easier to do this if the cut is made somewhat slanting, as shown in the accompanying diagram on page 60 which also illustrates where the cut should be made—a fraction of an inch above the eye.

The new growth after pruning *will be strongest from the topmost eye*. By keeping this in mind when pruning the habit of the future growth of the plant may be controlled to a considerable extent. Usually it is best to select an eye pointing outward from the center of the plant, to get a spreading open-centered bush; this is especially desirable in the case of Hybrid Perpetuals and strong growing Hybrid Teas.

Do not buy cheap pruning shears; they will not do satisfactory work and one good pair will outlast three or four

made of poor material. A knife may be used, but the beginner will usually find shears easier to operate. A small "California" or bow-shaped pruning saw is handy for old hard growth. Prune only with sharp-edged tools which will leave quick-healing cuts.

WHEN TO PRUNE

While it is both impracticable and unnecessary to set down any definite lists of dates for pruning, the routine of this work on a place where a number of different types of roses are grown will be about as follows:

Spring. With the garden or bush roses, the main pruning should be done *as soon as the buds swell* sufficiently to show what wood has been killed back during the winter. Winter-killed wood should be removed from climbing roses, and they may be thinned out, if they have become too bushy through previous neglect. This applies also to landscape roses.

Summer. Hardy Climbers or Ramblers which produce but one crop of blooms should be given their main annual pruning *as soon as the flowers fade*. This applies particularly to varieties sending up strong new canes from the base of the plant. Hybrid Perpetuals and strong growing Hybrid Teas may be cut back somewhat to keep the plants low and stocky and to induce new growth for fall flowering.

Autumn. *As soon as the foliage is off*, permitting the plants to be seen more clearly, is the best time for pruning or thinning out bush, briars, species, and other landscape roses. Abnormally long growths of these and the stronger growing garden roses, which might whip about in winter winds, should be cut back two-thirds to one-half.

In brief: prune garden roses in spring when the buds swell; climbing roses in summer just after they bloom; and landscape roses in autumn when the leaves fall.

CHAPTER X

CONTROLLING INSECTS AND DISEASES

THIS chapter will be a short one—not because the subject is unimportant, but because the methods of control of the various diseases and insect pests which attack roses have been so greatly improved and simplified. With modern methods it requires but a fraction of the time it used to take to combat rose enemies, and much more certain results are obtained.

Let not the prospective rose grower, however, misinterpret the above as implying that he has nothing to fear from this source. Unfortunately he cannot lay that flattering unction to his soul! Rose troubles are prevalent as never before, and unless they are guarded against with the most effective means available, failure, at least with the garden roses, is almost certain.

PREVENTIVE MEASURES

Much can be done to lessen the likelihood of injury to roses from insects or diseases by taking preliminary steps which render their attacks less likely, or minimize serious results in case they do appear.

The first safeguard in this direction is to plant vigorous growing varieties which have a tendency towards disease-resistance. In doing this, those catalogs which are honest enough to mention the faults as well as the good points of the roses which they list will be found of great help. The gardener who does not want to bother with spraying or dusting may still have very satisfactory roses, with a minimum of attention in this respect, by sticking to the most

disease-proof types such as hybrid Rugosas, the Hardy Climbers, and species.

Plant under the most favorable conditions possible. These have already been discussed in the chapter dealing with the planning of the rose garden.

Maintain sanitation in the rose garden by clean cultivation, immediate treatment of plants which may show signs of disease, removing them entirely if they do not respond to this treatment, destroying fallen foliage or flowers, using tobacco in the summer mulch, and fall or winter spraying of dormant plants and soil.

Plants maintained in vigorous growth, by the use of plenty of plant food and water, are less likely to be attacked and are more capable of "growing out of" diseases, if attacked, than those in poor or even moderate health. In this connection I would like to emphasize again the great importance of keeping plenty of potash in the soil to produce wood and foliage of firm tissue (see page 39).

ROSE DISEASES AND INSECTS

Those who grow roses soon become acquainted with the more commonly encountered rose pests. The following brief descriptions may help the beginner to quickly identify the enemies for which he should always be on the lookout. The methods of control, suggested in parenthesis at the end of each description, are described later under the heading "Control Measures."

Rose Bug, also known as *Rose Beetle* and *Rose Chafer*. Dirty grey, ungainly, long-legged, gregarious beetles about one-half an inch long appearing in late May or June and devouring both foliage and flowers, particularly the light-colored ones; does not breed in the rose garden but in neighboring fields so they must be constantly killed off as they arrive. (Hand picking, sweetened arsenate of lead spray.)

Japanese Beetle. A comparatively recent comer, but spreading rapidly over the Eastern states; similar in shape to the large brown "June Bug," but much smaller—usually about three-eighths of an inch long, and a beautiful bronzy green in color; appearing in June or early July. (Hand picking; beetle traps; coated arsenate of lead.)

Aphis. The ordinary green "plant lice," and other similar forms, are minute soft-bodied insects which look innocent enough when they first put in an appearance, in groups of half a dozen or so, at the base of flower buds, and on the tips of new growth; they propagate with such rapidity that they soon become an actual menace. (Black-Leaf 40; Three-in-One-Control.)

Slugs and Caterpillars. There are several slugs and caterpillars which occasionally eat the foliage, or skeletonize the leaves. None are likely to do serious damage. (Arsenate of lead; Three in-One-Control.)



Leaf Hopper. This is a tiny, yellowish-white, very active little "jumper" infesting the under sides of the leaves in May or early June, causing yellow blotches to appear on the upper surface as the result of injured tissue. (Water spray; Black-Leaf 40; Three-in-One-Control.)

Scale. This is not likely to occur excepting on old and neglected plants. The individual scales are tiny—a tenth of an inch or less in diameter—but if allowed to increase unmolested they eventually become so numerous as to form a white incrustation along or around the stem, sucking the plant juices and causing serious injury. (Cut back badly infested wood; winter spray with lime-sulphur or Scalecide.)

Black-Spot. This is decidedly the most serious of rose enemies, prevalent almost everywhere, and attacking almost all types of roses, though some to a greater degree than others. It causes the foliage to drop, in bad cases leaving the plants absolutely bare, and often resulting in abnormal winter killing. Black-spot is easily recognized by the appearance, in late spring or early summer, of irregular circular spots on the upper surface of the leaves, and almost invariably on the lower leaves of the plant first. As the spots grow they become more irregular and darker in color; new ones appear, and the leaf becomes yellow and will fall at a touch,

or eventually drop of its own accord. Black-spot is most likely to appear in wet weather or when there are heavy dews; moisture, particularly heavy spattering rains and wind, spread the disease spores. These germinate on the surface of the leaves *in a few hours*, and develop within the texture of the leaf, beneath the surface. (Immediately gather and destroy diseased or fallen leaves; Bordeaux mixture, Three-in-One-Control.)

Mildew. In many sections this is more prevalent than black-spot but is not generally so destructive; it usually appears first during spells of damp, warm weather which causes the ever-present spores to germinate, when they show as a gray or dirty white coating; likely to appear first upon the buds, but spreading rapidly to foliage and even to the stems; new growth and the opening of the buds seriously interfered with. (Three-in-One-Control.)

Brown Canker. This causes the death or killing back of the canes or stems from girdling by the spreading cankers, which start as small reddish or purple spots, changing later to whitish bark wounds, which often develop into cracks running in the direction of the stem. The small initial disease spots appear from early summer on; during the winter or very early spring, the cankers develop with a characteristic purplish edge, gradually increasing in size until they circle the stem; it develops also on the blossoms. (Winter spraying with lime-sulphur or Scalecide, 4-4-50 Bordeaux mixture, in early spring before pruning—the soil surface as well as the plants—and repeated throughout the summer.)

While there are other insects and diseases than those mentioned above, they are less likely to be encountered, and almost without exception are controlled by the same means.

CONTROL MEASURES

The insects which attack the rose—like those encountered elsewhere—belong to two general groups: those which actually *eat* the foliage, and those which *suck* the plant juices from beneath the surface. The first should be killed by poison applied to the foliage *before* they eat it; arsenate of lead is the most generally effective of these poisons.

Sucking insects are immune to poisons of this type but can be killed by what are known as “contact poisons,” that is poisons which must actually *hit them* to do their work; nicotine is the most generally effective.

Practically all fungus diseases may be controlled by the application of sulphur, which is the most effective fungicide. Many fungus diseases, such as black-spot, cannot be “cured”

because, once established, they develop largely underneath the surface of the foliage; they can be *prevented* by keeping the surface covered with the fungicide so that the spores are destroyed before they have a chance to germinate.

Three-in-One-Control. Fortunately for the ease of mind and the convenience of the rose grower, it is possible to combine the materials required to control chewing insects, sucking insects, and fungous diseases, and apply them together.

For a Three-in-One-Wet-Spray-Control use Bordeaux lead with Black-Leaf 40 (a forty per cent nicotine sulphate). Apply with a good sprayer.

For a Three-in-One-Dust-Control use the Massey Dust, developed by Professor Massey of Cornell particularly for the control of rose diseases, and consisting of nine parts dusting sulphur, one part of arsenate of lead powder, and one part fine tobacco dust; preparations similar to the Massey Dust are sold under various trade names, such as All-in-One-Mixture, and Hortex.

As the nicotine, either in wet sprays or dusts, is effective only when it comes in direct contact with the insects such as plant lice, it may be omitted unless these are present; however, the additional cost for an area no larger than the average rose garden, is so slight, and the possibility of these insects being present and as yet unobserved is so great, that I believe in using all three ingredients all the time. My own practice is to dust regularly with this Three-in-One-Control, and then, if in spite of this some pests begin to show their heads (as they sometimes will!) to go after them with a specially adapted treatment.

Hand Picking. This is often desirable to get rid of such things as rose bugs and other beetles and caterpillars which, although they might be poisoned by an insecticide, would have done considerable injury before being killed. They may be knocked off readily with a bit of shingle or a flattened wooden stick, into a can or glass jar half filled with water and kerosene. The best time to do this is early in the morning while they are still cold and sluggish. Rose bugs usually go first to the white or light colored flowers, and are often to be found at the heart or center of the bloom.

Arsenate of Lead. This may be had in either paste or powder form; the latter may be used for either spraying or dusting. "Coated" arsenate of lead is used for Japanese beetles as they will not eat the ordinary form.

Black-Leaf 40. A very concentrated nicotine sulphate in liquid form; it is the most economical of the various nicotine extracts to use.

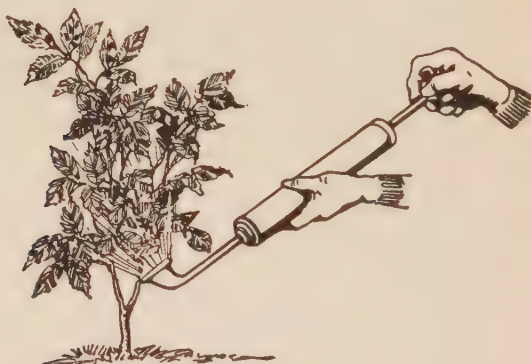
Sulphur Dust. Flowers of sulphur is too coarse for satisfactory results in dusting. Sulphur prepared especially for this purpose, now sold by most seedsmen, is known as "dusting sulphur" and "tricked" sulphur.

Bordeaux Mixture. There are several prepared forms of this standard spray for diseases. Sulfuricide is often used in its stead.

Scalecide. Used for dormant or winter spraying, when the foliage is off, to control scale insects and various canker, scab, and blight diseases.

SPRAYING AND DUSTING

Usually those who fail to secure the desired protection with standard insecticides and fungicides have not used them properly. Successful control can not be obtained by haphazard methods.



Use of Dust Gun

Timeliness. This is absolutely essential, particularly in the control of black-spot and other fungus diseases where the foliage has to be coated with the poison *before* the disease spores light on it; new growth must be kept covered, and this means spraying or dusting at least every week or ten days. To control black-spot in rainy weather, when the plants are growing rapidly, applications may have to be made twice a week. Apply *before* rains rather than afterwards.

Thoroughness. The under sides of the leaves must be covered as well as the tops. Early in the morning or late in the afternoon, when the air is quiet, is the best time. Contrary to the common belief it is *not* necessary that the

foliage be moist when applying modern dusts of microscopic fineness.

Carefulness. In using any dust or spraying material follow the manufacturer's directions exactly. With wet sprays it is sometimes necessary to use a sticker or spreader. Casein is a material prepared especially for this purpose.

Adequate Equipment. Another frequent cause of failure is the use of cheap sprayers and dusters that last about as long as toys, and are incapable of doing a good job even when new. The most satisfactory inexpensive dust gun of the plunger type which I have come across is the Feeney Duster. The larger size, or Model A (illustrated on page 72) is equipped with a special extension tube which makes it possible to dust the under sides of the foliage rapidly and thoroughly without stooping over. It costs \$3.75. A good compressed air sprayer costs from \$6 to \$10. It pays to get a brass tank as the others soon corrode. One of the advantages of dusting over spraying is that the material does not have to be mixed for use but can be kept in the duster ready to apply *instantly* at any time.

CHAPTER XI

ROSE PROPAGATION FOR THE HOME GARDEN

CONSIDERING the ease with which many kinds of roses may be propagated or increased under home garden conditions, it is surprising that so few persons act on this opportunity to obtain extra plants for their own use and exchange with their garden neighbors.

Even the production of original varieties by hybridizing is not at all beyond the scope of the amateur. The growing of seedling plants offers no great difficulties; they flower the second season after sowing and occasionally in the first year. The chance of obtaining new varieties worthy of commercial introduction may be slight, but there are almost certain to be some that the hybridizer will find worth while growing for his own pleasure, and there is always the fascinating possibility that the unexpected *may* happen and a distinct new sort of unusual merit appear to reward his experiments.

In the limited space of a volume such as this, only very brief suggestions may be presented. Those who wish to follow this subject further can find more detailed information in the volumes of the *American Rose Annual* (see Introduction), and the various books on rose growing available in most large libraries.

PROPAGATION

Practically all of the Hardy Climbers and the species and the species hybrids make satisfactory own-root plants, being propagated commercially by this method. Even varieties of garden roses which ordinarily are budded may be grown on their own roots for home use from cuttings or layers.

Hard-wood Cuttings. The simplest way of obtaining new plants of many roses is by means of hard-wood or dormant cuttings. These are usually made in fall or early winter. Select small, well-ripened, young wood; if the pricklers snap off instead of bending under pressure of the thumbnail, the wood is sufficiently ripe. Make the cuttings long enough to contain four eyes, the bottom cut being just below a bud, or with a "heel" or piece of the base of the shoot. More eyes may be left, but there is no advantage in having the cuttings over six or seven inches long.

Such cuttings are often rooted in a sheltered spot in the garden by inserting half to two-thirds of their length in well-drained, rather sandy soil, and covering them with ordinary wide-mouthed pint glass fruit jars. Sometimes two or three cuttings are placed under a quart jar. The jars are pressed firmly down upon or slightly into the soil, the ground being well watered if it is dry. With the approach of freezing weather the soil is hilled up about the glass, which may be further protected in mid-winter by covering with old bags, matting, or evergreen boughs. No attempt should be made to keep the ground from freezing, but in very cold sections, several inches of manure may be placed around the glass covers.

When the leaf buds commence to develop in the spring, gradual ventilation should be given at first, and the jars entirely removed when all danger from late, hard frosts is over.

There are several variations of the above simple procedure. The cuttings may be made during late autumn or even in December or January, those of each variety being tied together in a bundle and carefully labelled. They are then placed *upside down* in a box of slightly moist sand or peatmoss and covered three or four inches deep. They are kept in a cellar, or buried in a cold frame; no further attention is required except to see that the packing material

never dries out enough to shrivel. By the time the frost is out of the ground in the spring they will have formed calluses and may be planted in well pulverized soil outdoors, a few inches apart, in rows, with two or three inches left above ground. They will usually root quickly and make surprising growth. This method is better for securing a goodly number of plants of the Climbers, especially *Wichuraiana* and *Multiflora* hybrids.

Where a larger number of garden roses are wanted than can be readily grown under glass jars, the cuttings may be placed in a fairly tight cold frame in the fall. They will root more readily in a mixture of equal parts of sand and granulated peatmoss than in ordinary garden soil. (This mixture may be used, also, under the glass jars.) The frame should be banked with soil or manure for the winter, and protected with mats or other covering during excessively cold weather. Little or no ventilation will be needed until the leaves start in the spring, when the plants can be gradually hardened off. When crowding begins, plant a foot or so apart in rows to grow until autumn.

Green-wood Cuttings. These are cuttings made of new wood while the plants are growing; they are usually somewhat shorter than the hardwood or dormant cuttings with all but the top leaf or two removed. The sections selected for the cuttings are taken far enough down the stems for the wood to be fairly firm. Insert firmly in a mixture of sand and peatmoss, either in a frame or under glass jars in a shady spot. Frames should be shaded by lath or cloth-covered sash, supported a foot or so above the glass. No ventilation will be needed for four or five weeks, as a high temperature and humid atmosphere are necessary to induce rooting. Water the soil often enough to prevent drying out, but do not keep it wet. The foliage, however, should be moistened with a fine mist spray to prevent wilting in hot, bright weather—once every day, sometimes oftener, for the first week or two. After a month or so, ventilation may be introduced gradually and the shading removed. Green-

Propagating

by Cuttings

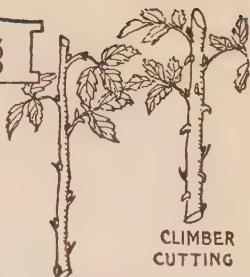


HARD-WOOD CUTTING
WITH "HEEL"

DORMANT CUTTING
FOR SPRING PLANTING

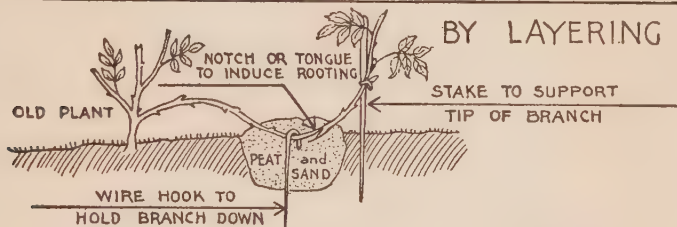


ROOTING CUTTING
UNDER GLASS

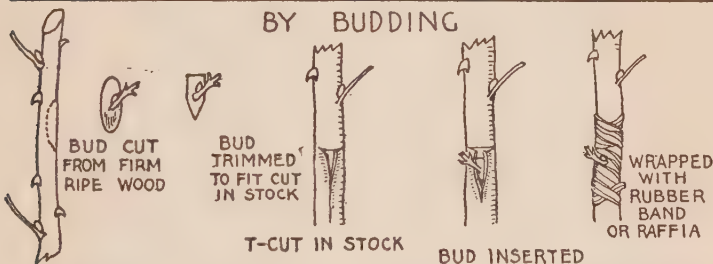


CLIMBER
CUTTING

HYBRID TEA
GREEN-WOOD CUTTING

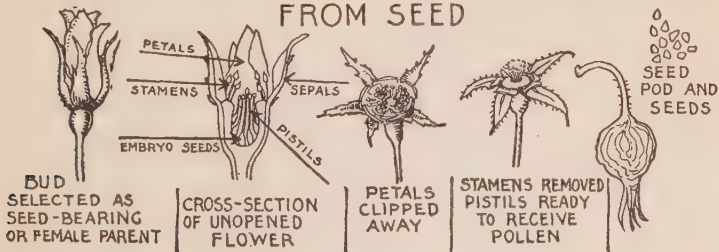


BY LAYERING



BY BUDDING

FROM SEED



BUD
SELECTED AS
SEED-BEARING
OR FEMALE PARENT

CROSS-SECTION
OF UNOPENED
FLOWER

PETALS
CLIPPED
AWAY

STAMENS REMOVED
PISTILS READY
TO RECEIVE
POLLEN

SEED
POD AND
SEEDS

wood cuttings require much more attention than hard-wood cuttings. They are an interesting experiment for the real rose enthusiast and offer no great difficulty if the requisite care is given.

Layering. This is the easiest method of increasing some varieties. Make a slanting cut or a notch adjacent to an eye, bend down the cane so that the plant may be covered up at this point with soil (or with the peatmoss and sand rooting mixture), and hold in position with a small stone or a notched stick. Strip off the leaves from the part of the stem which is covered. The growing tip may be held in an upright position by another stake. Not all roses may be rooted this way, but many of the Climbers and Briers will supply new plants readily in return for a few moments' work.

Budding. Budding consists in taking an eye of the variety wanted, and transferring it to a plant—which is called the “stock”—of another kind of rose. After the bud begins to grow the top of the other plant is removed, the growth from the eye eventually forming an entire new top.

The details of budding are illustrated in the drawings on page 77. It is necessary, of course, to have a supply of stocks. These may be obtained from nursery firms that grow roses, *multiflora japonica* being the variety most used for this purpose, or the amateur may grow his own stock from either seed or cuttings. Such popular climbers as Dorothy Perkins, Hiawatha, or Excelsa will answer, but all except the top eye should be *cut out* when the cuttings are made.

The buds are taken from year-old, healthy wood. The eye is removed by making a cut which takes with it a tiny shield of bark and a sliver of wood. A bit of the leaf stem is left to protect the eye and to make the bud easier to handle. The bud may be taken at any time of the year but late June or July are the usual seasons. In a small greenhouse or in a conservatory budding may be done at any time of the year; or dormant plants may be budded in

a cool cellar in late fall or winter. All that is necessary is that the bark of the stock be in a condition to separate easily from the wood beneath it.

In inserting the bud, a T-shaped cut is made and the bud slipped in and pushed well down, so that no space is left beneath the lower tip of the shield. The top of the upper tip of the shield may be cut off square to conform with the cross cut on the stock. To hold the bud in place until it unites with the stock, it is tied with raffia, or bound with an ordinary light rubber band, about an eighth of an inch wide, cut to make a long strip. The top of the stock is left in place until after the bud begins to grow, usually two to three weeks, and then gradually cut back. Eventually *all* the stock is removed to within half an inch of the bud. If the budding is done late—after mid-summer—most or all of the stock is left on over winter, and cut off the following spring.

Experimenting with budding involves no expense other than the purchase of a budding knife, and even this is not absolutely essential. It offers a field for very interesting work. Some practice is needed to acquire just the knack of cutting the buds and making a neat job of the "budding," but once this is mastered, the amateur may produce, almost at will, new plants of his favorite varieties, even Hybrid Teas and Pernetianas which do not do well on their own roots. Roses of this type budded in early June will usually give a number of flowers on the new plant the first season.

HYBRIDIZING

The methods of propagation briefly described above are utilized for the production of varieties of roses which the gardener—or his neighbors—already possess. To create *new* varieties one must start with seed.

The beginner may first use seeds of natural crosses, by saving such seed pods as develop in the garden, or he may attempt pollination by hand. This should be done in June

or early July to give the seeds time to ripen thoroughly, and is accomplished as follows:

The rose is bi-sexual—that is, the same flower bears both the stamens or male organs, which produce the pollen, and the pistils or female organs, which must be fertilized with pollen to produce seed. To make sure of obtaining the crosses desired, therefore, accidental fertilization must be prevented. To do this the operator must “get up before breakfast.” Once the blooms have opened, it is too late. But if the attempt at hybridizing accomplishes nothing more than getting the rose grower out into his (or her!) garden at six or seven o’clock of a summer’s morning, it will have been well worth while! A new world, a different world, with nothing to disturb one’s thoughts but the songs of birds, which will be silent later when the sun comes over the hill, is to be discovered there.

Select half-opened buds of the varieties wanted for seed bearing. Their beauty must be sacrificed to the task in hand. With small scissors (grape-thinning scissors are ideal for this purpose) carefully snip away the petals just above the base of the flower, which contains the ovary, leaving the outer green bud coverings or sepals. Next, with tweezers or a very small knife blade, remove the bases of the petals and the clusters of stamens, leaving the pistils exposed as in Figure 3 (see page 77). Cover each flower so prepared with a small paper or glassine bag to protect it from accidental pollination.

The pollen-bearing or male plant for the cross may be prepared next. Select buds about to open, but still closed. Cut with a convenient length of stem and place in water in a sunny window, where they will open before noon. When the anthers are ready to shed their pollen, they are ready to use. This can readily be determined by touching with the finger to see if the golden dust detaches itself. To complete the operation, remove or hold back the petals, and brush the stamens over the pistils of the flowers in the garden which have already been prepared.

Immediately after pollenating, replace the covering. The pollenated flower should be marked with a label (such as that described on page 51), bearing a key number, or the names of the parents. The male or pollen-bearing parent is usually placed first, thus: Prince de Bulgarie x Lady Ash-town. Single or semi-double varieties are much more likely to set seed than those which are very double.

Starting the Seed. When the seed pods have changed to the color characteristic of the plant—orange, yellow, red, or black as the case may be—they are ripe and ready to gather. Experiments at the Boyce Thompson Institute have demonstrated that the seeds will germinate much more quickly and certainly if held for a period of two to four months at a temperature averaging forty-one degrees Fahrenheit, or as near that as can be maintained; it may range from thirty-two to fifty degrees. This is called “after-ripening.” The seeds may be removed immediately from the pod and placed in moist peatmoss, which has been found better than sand for this purpose. An electric refrigerator, if available, makes a good place to keep them. After-ripening may be accomplished, though less certainly, by “stratification”; that is, planting the seeds in flats immediately after they have been gathered and keeping them out of doors in a frame, or in a cellar maintaining a temperature between thirty-two and fifty degrees. Many will germinate the following spring, but some may remain dormant for one or even two years.

Granulated peatmoss, or a half-and-half mixture of peatmoss and gritty sand, will serve as a medium in which to start the seeds, which should be covered about one-half inch deep, and placed an inch or so apart. Keep the seeds from each pod separate and carefully labelled, and protected from mice by wire netting.

By mid-summer, when the little seedlings begin to crowd, transplant them carefully to a frame, or a prepared bed of fine, fairly rich soil, well supplied with potash.

CHAPTER XII

SUGGESTED VARIETIES FOR VARIOUS PURPOSES

THIS chapter, though perforce crowded into limited space, is important to the beginner with roses because it will help him to select types for many purposes for which they are too seldom used.

The reader's attention is called particularly to Climbing roses for cutting, to the newer, large-flowered Polyanthas, which are the nearest approach to really everblooming garden roses, and to the roses suggested for various landscape uses.

SUGGESTED AND RECOMMENDED VARIETIES

I

GARDEN ROSES

THE ROSE EXPERTS' PREFERRED DOZEN

(Selected by G. A. Stevens, in *The American Rose Annual for 1929*, from lists submitted by twenty-four leading rosarians.)

Etoile de Hollande	Mme. Butterfly
Rev. F. Page-Roberts	Mrs. Henry Morse
Betty Uprichard	Mrs. Charles Bell
Souvenir de Georges	Radiance
Pernet	Willowmere
Lady Margaret Stewart	Mme. Jules Bouché
Mme. Edouard Herriot	

TWENTY-FIVE SATISFACTORY HYBRID TEAS

Betty Uprichard	Lady Alice Stanley	Mrs. Wakefield Christie-
Charles P. Kilham	Lady Ashtown	Miller
Dame Edith Helen	Miss Rowena Thom	Radiance
Dorothy Page-Roberts	Mme. Butterfly	Red Radiance
Etoile de Hollande	Mme. Segond Weber	Richard E. West
Gruss an Teplitz	Mrs. Aaron Ward	Rev. F. Page-Roberts
Innocence	Mrs. Charles Bell	Souv. de H. A.
Imperial Potentate	Mrs. Erskine Pembroke	Verschuren
Julien Potin	Thom	Ville de Paris
Kaiserin Auguste	Mrs. Henry Bowles	Willowmere
Viktoria	Mrs. Henry Morse	

TWELVE HYBRID PERPETUALS

Arrillaga	Frau Karl Druschki	Mrs. John Laing
Captain Christy	Georg Arends	Mrs. R. G. Sherman-
Captain Hayward	Hugh Dickson	Crawford
Druschki rubra	Magna Charta	Pittsburgh
	Mme. Albert Barbier	

TEN TEA ROSES

Alexander Hill Gray	Maman Cochet	Rosette Delizy
Harry Kirk	Maman Cochet, White	Souv. de Pierre Notting
Lady Hillingdon	Molly Sharman-	William R. Smith
Lady Plymouth	Crawford	

FOR LATE AUTUMN BLOOM

Betty Uprichard, orange-carmine.
 Dame Edith Helen, clear pink.
 Elizabeth of York, cerise pink.
 Edward Mawley, dark red.
 General MacArthur, dark red.
 John Cook, deep La France pink.
 Kaiserin Auguste Viktoria, white.
 Miss Willmott, white.

Mrs. Aaron Ward, salmon gold.
 Mrs. Henry Morse, pink.
 Rev. F. Page-Roberts, golden yellow.
 Sensation, dark red.
 Templar, crimson.
 Wilhelm Kordes, golden salmon.
 Willowmere, salmon pink.

LARGE-FLOWERED POLYANTHAS

(Distinct from preceding having larger flowers, some semi-double or single; most are excellent for cutting, and desirable as supplements to Hybrid Teas.)

Cécile Brunner (Sweetheart Rose) light pink, semi-tender.
 Chatillon, bright pink.
 Else Poulsen, bright rose pink.

Frau Dr. Erreth, golden yellow.
 George Elger, pale yellow, semi-hardy.
 Gruss an Aachen, light salmon, fragrant (see frontispiece.)
 Kirsten Poulsen, light red.
 Lafayette, crimson scarlet, semi-double.
 Perle, d'Or, light orange yellow, semi-hardy.
 Rödhätte, crimson, semi-double.
 Tip-Top, beautiful coppery yellow.

FOR "BEDDING", "MASSING" AND "EDGING"

(Typical Dwarf Polyanthas similar in habit to Mme. Norbert Levavasseur, or "Baby Rambler," the variety which brought this type into prominence.)

Æennchen Müller, bright pink.
 Coral Cluster, coral pink.
 Eblouissant, velvety dark crimson.
 Echo, light pink, thornless.
 Ellen Poulsen, bright rose pink.
 Erna Teschendorff, bright red.

Golden Salmon, bright orange salmon.
 Ideal, dark scarlet.
 Katharina Zeimet, pure white, scented.
 Lady Reading, bright red, scented.
 Miss Edith Cavell, scarlet.
 Mrs. W. H. Cutbush (Baby Dorothy), pink.
 Mrs. Wm. G. Koning, excellent white.
 Orleans, light red, lighter eye.
 Yvonne Rabier, white, extra fine foliage.

II

CLIMBING ROSES

(Letter following varieties indicates blooming season, as follows: EE, extra

early; E, early; M, mid-season; L, late; V. L. very late.)

FOR MASS DISPLAY OF COLOR

Rambler type, with large trusses of small flowers.
 American Pillar, pink, white eye, L.
 Bloomfield Courage, deep velvety red, EE.
 Dorothy Perkins, shell pink, VL.
 Hiawatha, the most dazzling red, VL.

Lady Godiva, an even better Dorothy Perkins, VL.
 Marie Gouchault, salmon red, EE.
 Tausendschön (Thousand Beauties), mixed shades of white, pink and cream, EE.
 White Dorothy, pure white, VL.

HARDY CLIMBERS, FOR TALL SUPPORTS

- Albertine, coppery yellow, not quite hardy, M.
 American Pillar, crimson-pink, light eye, single, L.
 Ben Stad, white, tinted pink, fragrant, M.
 Bess Lovett, light red, fragrant, L.
 Chaplin's Pink Climber, pure pink, extra fine, EE.
 Dr. Huey, deep velvety crimson maroon, E.
 Gardenia, rich creamy yellow, EE.
 Goldfinch, creamy yellow, fragrant, hardier than Emily Grey, E.
 Jacotte, buff orange, not quite hardy, M.
 Mary Lovett, pure white, extra good, E.
 Mme. Grégoire Staechelin, soft pink, extra fine, EE.
 Primrose, new, best pure yellow climber, L.
 Silver Moon, pure white, huge nearly single flowers, M.
 Thelma, large pale pink flowers, long season, M.

FOR CUT BLOOMS

- (Blooms on individual stems or in loose clusters.)*
 Albertine, coppery yellow, fragrant, M.
 Alida Lovett, shell pink, scented, M.
 Bess Lovett, light red, fragrant, L.
 Coralie, Los Angeles-salmon-pink, E.
 Dr. W. Van Fleet, soft pink, extra fine, L.
 Emily Grey, true yellow, not quite hardy, M.
 Freedom, lemon white, fragrant, E.
 Mme. Grégoire Staechelin, climbing H. P., pink, fragrant, fine, EE.
 Paul Noël, salmon old rose, E.
 Phyllis Bide, golden pink, nearly ever-blooming, E.
 Purity, pure white, VL.
 Thelma, pale pink, long-keeping, M.
 Wichmoss, pink climbing moss rose, L.

FOR LATE SUMMER AND AUTUMN BLOOM

- Albéric Barbier, cream yellow, not quite hardy, E.
 Birdie Blye, pink, moderate growth, EE.
 Christine Wright, wild rose pink, EE.
 Mary Lovett, pure white, fragrant, E.
 Mrs. George C. Thomas, salmon pink, A. R. S. gold medal, M.
 Paul Noël, salmon-old-rose, E.
 Silver Moon, pure white, almost single, M.

FOR PILLARS AND PYLONS

- (Ramblers and Climbers of moderate growth.)*
 Aviateur Blériot, yellow, not quite hardy, M.
 Aunt Harriet, light red, semi-double, EE.
 Birdie Blye, pink, fragrant, nearly ever-blooming, EE.
 Chaplin's Pink Climber, pure pink, EE.
 Crimson Rambler, red, subject to mildew, VL.
 Désiré Bergera, coppery rose, L.
 Emily Grey, true yellow, not quite hardy, M.
 Le Rêve, golden yellow, semi-double, EE.
 Mary Wallace, vivid pink, scented, L.
 Papa Gouchault, crimson-red, fine, E.
 Papa Rouillard, red, few thorns, M.
 Paul's Scarlet Climber, burning scarlet, extra fine, E.
 Phyllis Bide, golden pink, nearly ever-blooming, E.
 Snowdrift, pure white, very long lasting, L.
 Star of Persia, like Le Rêve, possibly more vigorous, EE.
 The Beacon, bright red with white eye, L.
 Victory, salmon pink, fragrant, M.

III

LANDSCAPE ROSES

- (Extra vigorous garden roses of shrub-like habit and unusual hardiness or vigor; semi-climbing and trailing Climbers and Ramblers; and various Species, suitable for landscape purposes.)*

FOR HEDGES

F. J. Grootendorst, red, everblooming.
Pink Grootendorst, pink, even better.
The Wallflower (Hardy Climber)
scarlet.
Hugonis, and other species.
Pemberton's Musk (Moschata) hybrids,

such as Thisbe, except in severe climates.
Hansa, (Hybrid Rugosa) reddish violet.
Rose à Parfum de l'Hay, deep crimson, everblooming, fragrant.
Rugosas and Hybrid Rugosas in general.

FOR INDIVIDUAL SPECIMENS

Frau Karl Druschki (HP) double white.
General Jacqueminot (HP) deep red.
J. B. Clark, light velvety red.
Agnes (Rugosa) yellow.
Conrad Ferdinand Meyer (Rugosa) silver pink.
Hybrid Rugosas in general.

Hugonis, yellow, single.
Xanthina, yellow, double.
Moyesi (species) similar to Hugonis but blood red.
Spinossissima (species) Scotch rose, white or pink.
Species-hybrids in general.
Moss roses of vigorous growth.

FOR THE SHRUBBERY BORDER

(Species and varieties with long, arching, self-supporting canes, are best for this purpose, as there is usually some undergrowth about their bases.)
The Austrian Briers, such as Harrison's Yellow, Persian Yellow, and the newer Sonnenlicht.

Hybrid, or Penzance, Sweet briers, such

as Lord Penzance, Lady Penzance and Refulgens.

Species of tall habit, such as *R. blanda*, which is thornless; *R. gymnocarpa*, with distinct red pips; *R. humilis* and its sub-species; *R. multiflora*; *R. Hugonis*; and most other species and varieties suggested for individual specimens.

FOR BANKS, WALLS, FENCES, ETC.

(Various Climbers of trailing habit, and wiry stems, and with disease resistant or near-evergreen foliage.)

Evergreen Gem, cream white, with yellow buds, midseason.
Félicité et Perpétue, pale cream, foliage of evergreen tendency, early.
Klondyke, light yellow, late.
Mermaid, ivory-white, single, everblooming, but not entirely hardy without protection.

Mrs. M. H. Walsh, double pure white, good ground cover.

Prof. C. S. Sargent, double, yellow, fine for fences, not absolutely hardy, early.

Source d'Or, golden yellow, good for walls or stumps, late.

Max Graf, Climbing-Rugosa, pink, best ground and bank cover.

R. Wichuraiana (species), the "Memorial Rose."

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